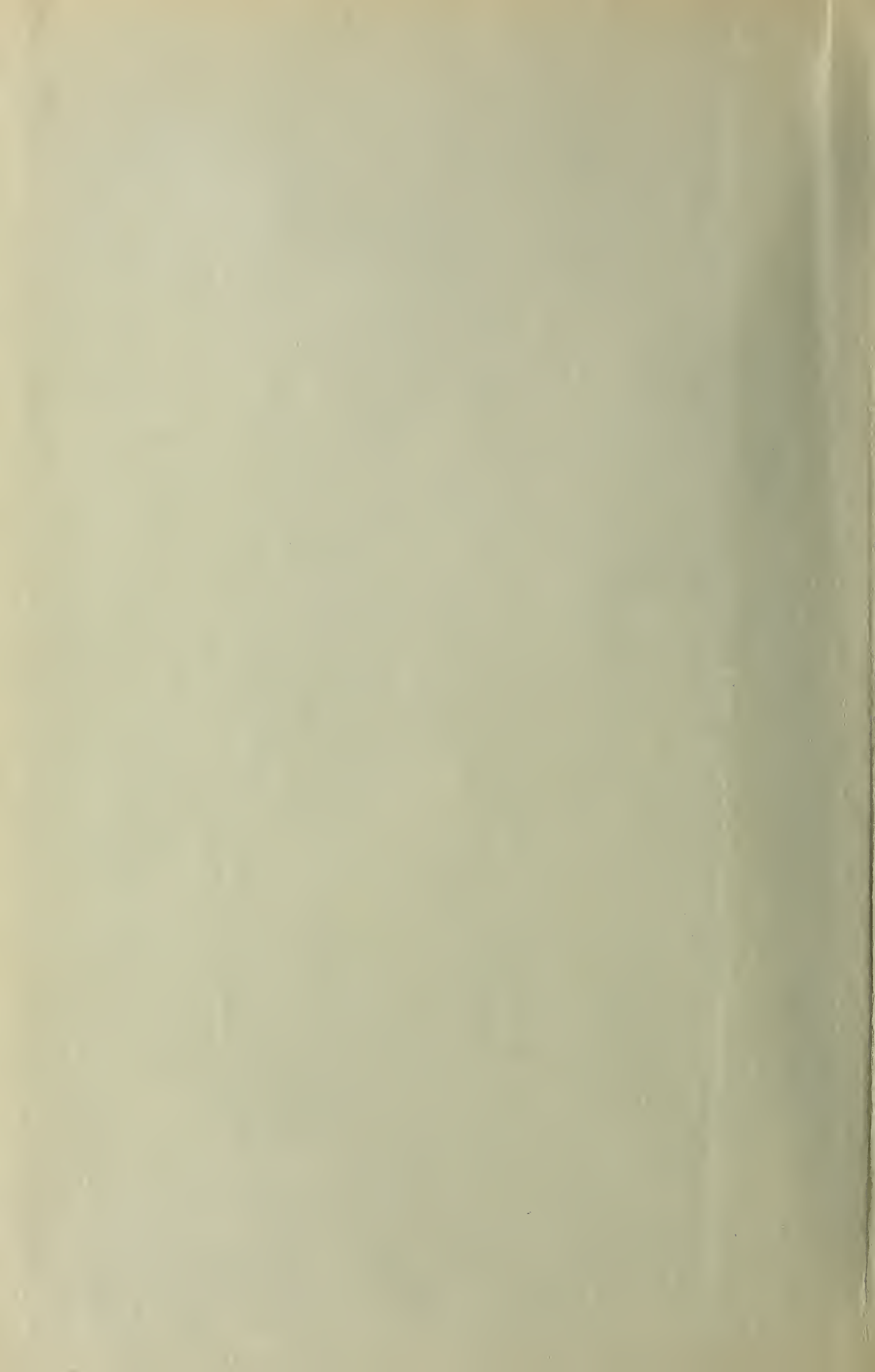




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WEDNESDAY, APRIL 5, 1916

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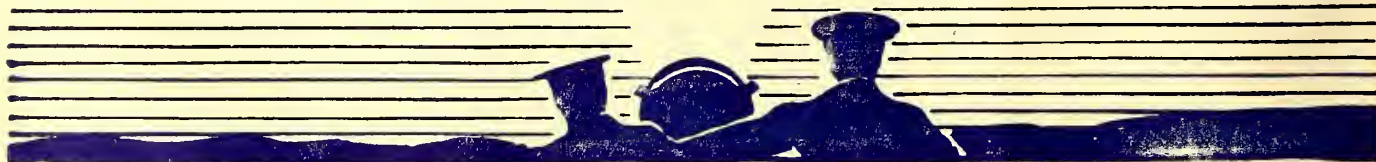
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ON THE REFORM OF THE FLYING SERVICES.

It is not often that any Government official gives so complete an example of following a Government precept as did Mr. Tennant in the House of Commons on Tuesday, March 28th, in the present year of grace. For months the Government has been preaching economy, yet the most appalling extravagance has prevailed in every department, from Ministerial use of large petrol-wasting motor-cars down to the conscription of money-earning business-men into money-wasting jobs in the Army; but for once we have had an unsurpassable example of economy—and the commodity thus expended so sparingly was truth. Those who know the facts about the inside working of the R.F.C. must have been filled with admiration at Mr. Tennant's ability to make so little truth go such a long way.

Considered as a politician, Mr. Tennant displays greater mental agility than did Colonel Seely when confronted with a similarly awkward though less immediately serious exposure of R.F.C. deficiencies some three years ago. His quickness in replying to some of the points raised against him may perhaps be accounted for by the fact that no less a source of information than General Sir David Henderson, K.C.B., D.S.O., Director-General of Military Aeronautics, was seated a few yards away from him during the debate, and appeared to be busy compiling notes to aid Mr. Tennant in his reply.

It is, one imagines, a trifle unusual for an officer on the active list who is not a member of Parliament to take so nearly a direct part in a debate as this, and one does not recall any instance of an officer who has commanded in the field, whether successfully or unsuccessfully, sitting on the floor of the House of Commons and acting as prompter to a member who is either attacking or defending the administration or equipment of the particular force which he has commanded. This war, however, has created its own precedents in many ways, so this may be merely another result of this terrible war.

One would not venture to judge whether General Henderson was responsible for the little truth which Mr. Tennant managed to make go such a long way or whether he was the originator of some of Mr. Tennant's ingenious parries to his opponents. One recalls, however, that General Henderson had much to do with the Intelligence Department in South Africa, and that the Army recognises that the Intelligence Department calls for a type of mind somewhat more astute, not to say ingenious, in its methods than that of the ordinary regimental officer who is simply a leader of men. Also, General Henderson has on occasion shown remarkable ingenuity in debate both on paper and verbally, so that one may, at any rate, pay him the compliment of assuming that Mr. Tennant's defence would have been somewhat less ingenious if he had had to draw his facts from his department in the usual way.

Incidentally, if it became customary for officers on the active list, or ex-commanders in the field, or active-service officers temporarily at home to come down to the House, with official permission, and without endangering their

Service careers, to act as prompters to M.P.'s who are fighting a cause of which they approved, one might see some rather interesting sights. One might, for example, see during a debate quite a number of senior officers of the Royal Flying Corps ranged on the side of Mr. Tennant's opponents, sitting behind the Speaker's chair and passing them chits conveying valuable information for debating purposes.

I know, of a certainty, that the great majority of the active-service officers in both the Flying Services are strongly in favour of precisely the reforms advocated, and I feel as certain as I have ever felt of anything that in supporting Mr. Tennant and the Royal Aircraft Factory against the Reform Party in the House and out of it, General Henderson is fighting a lost cause. Doubtless it is only his strong sense of duty to his department which makes him adopt his present unfortunate attitude, but General Henderson will do well to consider the fact that if he continues to give his support to the Royal Aircraft Factory and its policy—which has cost us so many useful lives and has made us a third-rate aerial Power—he must stand or fall with that establishment.

If General Henderson's astute mind is capable of grasping the fact that the duty of a leader is to lead, even in retreat or on a change of front, he will cut loose from the R.A.F.—which has let him and the R.F.C. down so badly, as he himself is credited with admitting in a moment of candour—and will place himself at the head of the Reform Party. Though, of course, the situation might become complicated if the Reform Party refused to have him there. Anyhow, even if he retires gracefully and altogether from R.F.C. affairs and devotes himself to his seat on the Army Council, he will do himself and the cause of military aeronautics more good than if he continues to devote his undoubted ability to bolstering up a malignant system which has failed him and the nation alike.

How General Henderson ever came to give his support to the R.A.F. is one of the mysteries of British aviation. In the R.F.C. itself the explanation generally accepted is that, not having any intimate acquaintance with aeroplane design himself, he preferred that if the selection of machines for war were questioned he should be able to quote the Government's "experts" as authority for the choice made by his department, whereas if his staff selected "trade" machines, and the machines failed on active service, the military department would have to take the blame.

Whether this explanation—the kindest under all the circumstances—be correct or not, the fact remains that the "experts" have been consistently wrong throughout, and the R.F.C. would have been better served throughout if their machines had been chosen on sheer war-performance by active-service pilots.

Whenever an R.A.F. machine has appeared which has performed well it has only been produced in quantities when it has become six months out of date. And all these partially successful machines have been mere modi-

fications of "trade" machines. The B.E.2c. was a modified Avro, and appeared too late to be a useful war machine, and the Avro people were refused the use of bigger engines to enable these to improve their performance. The F.E.2b., about the most successful of the R.A.F.'s efforts, is a modified Vickers gun-carrier, and has only beaten the Vickers because the supply of big engines for it was "cornered" for the R.A.F.'s benefit. The F.E.8 is a modified de Havilland scout, and will be beaten like the rest before it is produced in quantities.

The S.E.4 was a modified Bristol "bullet," and has been a consistent failure; so have the R.Es.

In fact, every success on active service has been won by trade-designed and trade-built machines. Every failure has been traceable to the R.A.F.

To cap it all, I am informed that the General Officer Commanding, R.F.C., in France has refused to accept any more B.E.2cs. for active service: which decision would have been reached nearly twelve months ago if the authorities had listened to the active-service pilots.

If General Henderson is wise he will see that the best course for the good of the R.F.C., and incidentally for his own reputation and his own career, is to disown the R.A.F. altogether. Let him take out of it the few good men therein, and let him establish them in a nice little experimental shop where they can do as much useful work in the future as they have done in the past, for as many hundreds a year as the R.A.F. is spending in thousands.

ON R.A.F. METHODS.

An excellent example of the methods by which the R.A.F. has built up its reputation and has endeared itself to everyone concerned with aeronautics occurred last week. It appears that the Admiralty very amicably lent to the Aeronautical Inspection Department of the R.F.C. a new trade-designed aeroplane which is at present the last word in aeroplane design and which beats on performance anything yet produced in this or any other country. Two young officers were put in charge of this machine and it was flown to a combined Naval and Military Station to have its performance checked and tested by the special apparatus there available. On the way home after the tests the pilot descended at Farnborough, and in landing damaged the propeller—as the best of pilots may without disgrace. The machine was therefore wheeled into the A.I.D. sheds to await a new propeller.

Hardly was it housed there than an R.A.F. official arrived and announced that he was sending one of the R.A.F. underlings over to take sketches and dimensions, to weigh the machine, to investigate wing-curve, and so forth. The senior A.I.D. official present pointed out that the machine was not their property, that it belonged to the Navy, and that in common decency there were limits to R.A.F. methods—or words to that effect—and that he could not permit such action.

The R.A.F. official's reply was to commandeer the A.I.D. telephone and ring up a certain senior R.F.C. officer in London, who, being a firm supporter of the R.A.F., promptly said that the machine was to be measured. The underling therefore arrived in due course and proceeded to make sketches, presumably with a view to the usual R.A.F. procedure of crabbing the machine first and copying it six months later.

Meantime an A.I.D. official had rung up the A.I.D. Headquarters in London and explained the incident. A senior officer of the A.I.D. had thereupon interviewed the aforesaid senior officer of the R.F.C. and had seemingly convinced him as to the correct attitude which should be adopted by an officer who also happened to be a gentleman, and just as the R.A.F. underling had completed the cribbing operation the order came from London cancelling the previous order. The underling was by then already on his way to the R.A.F., but was pursued by A.I.D. officers, and the fruits of his misspent labours were destroyed by fire before his eyes.

Thus was the honour of the A.I.D. vindicated, but the honour of the R.A.F., if such a thing ever existed, does not appear to be quite cleared.

I feel sure that Lieut.-Col. Mervyn O'Gorman, C.B., Superintendent, Royal Aircraft Factory, will be glad to hear of this incident, for he was born an Irish gentleman, and even though some years of association with the motor trade and with that curious nondescript profession known with delightful lack of definition as "engineering con-

sultant" may dim the fine edge of one's perception, I am certain that he will deprecate the use by his department of methods so evidently shady as those indicated in the incident above related.

I trust that Lieut.-Col. O'Gorman is at one with me on this matter. If so, I hope he will investigate the matter further and make some statement concerning it.

While investigating, he might also find out whether it is now an open boast among his staff that after the war the Royal Flying Corps will have no aeroplanes except those built in the Royal Aircraft Factory.

Certainly the size of the buildings now erected and in course of erection lend colour to such a boast, for with such shops and with the number of hands now on the pay-roll of the R.A.F. it should be possible, under efficient management and with capable organisation, to turn out very nearly as many machines as the R.F.C. is now getting from all sources.

Information on this point would doubtless be appreciated by the various firms who have come into the trade lately and who are tamely making aeroplanes to R.A.F. design, albeit fully aware, as some of them are, that most of the said machines are perfectly useless for war purposes, and that their men would be doing more useful work in the trenches instead of shirking behind their munition badges.

These same firms might also be interested to know whether it is true, as I am informed, that the R.A.F. is actually making F.Es. in quantities, in competition with its own contractors. Makers of F.Es. who find their erecting-shops congested because of finished machines, completed but for their absent engines, taking up all the room might be glad to know whether the engines they need in order to fulfil their contracts for the R.F.C. are being put into stock at the R.A.F. to await completion of the R.A.F. machines.

It is not so very long since we were assured that the R.A.F. was to be only an experimental shop, and that aeroplanes would never be built there in quantities. I forget whether Mr. Tennant or General Henderson or Colonel Seely made the statement, but it was quite definite. Still, policies and politics change so rapidly in these days that one can scarcely call the latest move a breach of faith.

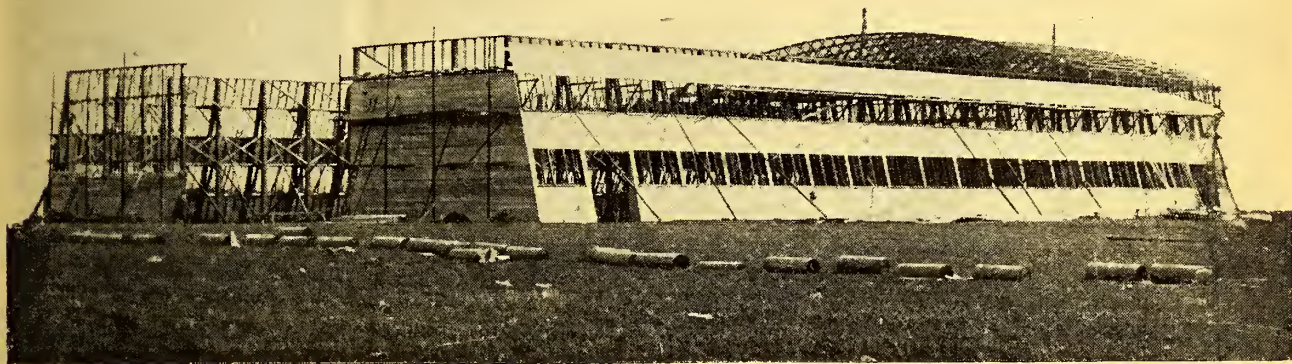
It is only a repetition of the case in which an important War Office official assured the trade that the R.A.F. was not trying to produce an engine of its own. And now look at the R.A.F. engines—look at them and smile sadly.

One learns with interest that Lieut.-Col. O'Gorman is now devoting his whole time to the R.A.F., instead of the three days a week for which he drew £1,400 per annum. I gather that he now draws at the rate of £3,000 per annum, and one can scarcely expect so well paid an official to be content with mere experiments.

The Great Storm

WE must confess that we were very anxious last Tuesday night during the great gale, and we lost no time in 'phoning all the Fairby Factories we had under construction. The one we were particularly anxious about was the one shown in this illustration.

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ON A JUDICIAL COMMITTEE.

The agitators for the Reform of the Flying Services have, at any rate, scored a point in obtaining from Mr. Tennant the promise of the appointment of a committee—a judicial committee—to investigate the charges against the misorganisation of the R.F.C.

The choice of members for such a committee will be of high interest. The first demand of the Reform Party must be that if the committee is to be judicial the Reform Party shall be entitled to have proper counsel for the prosecution, for counsel for the defence will be strong.

Also, the Reform Party must make it clear that it will not accept as members of that judicial committee anyone connected with the Government Advisory Committee for Aeronautics, or with the National Physical Laboratory. Both these bodies are too closely connected

officially, personally, and by mutual interest with the Royal Aircraft Factory for their impartiality to be above suspicion. Morally they are as guilty as the R.A.F., and actually one member at least of the Government Advisory Committee has been occupied for a long period with an energetic Press campaign against the Aircraft Industry and in favour of the R.A.F.

The promised judicial committee must not be like some of the Appeal Tribunals under the Compulsory Service Act, in which the members of the tribunals constitute themselves counsel as well, and bully the appellants like hostile barristers. We cannot permit them to be judges and advocates at the same time. Let the Reform Party make sure of this point before assenting to any of Mr. Tennant's proposals.—C. G. G.

"PRICKING A BUBBLE."

It is not the custom of this paper to pay any attention to its contemporaries. They do their best according to their lights, and are entitled to their opinions. But when the editor of a paper which professes to have the interests of the Aircraft Industry at heart acts in direct opposition to the good of the Industry it seems time to break away from that custom.

The leading editorial article in a paper edited by Mr. J. H. Ledebor makes an abusive personal attack on Mr. Pemberton-Billing, M.P., so one presumes that Mr. Ledebor wrote it himself. One assumes that it is the outcome of sober consideration, but it is not remarkable for sobriety of utterance, nor for sobriety of argument. Just why the writer of the article saw fit to insinuate that the "liquor interest" had anything to do with Mr. Pemberton-Billing's election is a matter concerning his own taste alone. He would have done better to have left this point out of his argument.

Facts speak for themselves. It remains evident that within two months of his determination to enter the House of Commons, Mr. Pemberton-Billing has fought two elections, at his own expense and without financial backing from anyone, that he has acquired by sheer force of argument and the soundness of his cause the powerful Press backing of Lord Northcliffe's papers, and has won the approval of those papers who most hate Lord Northcliffe and all his works. He has won his seat in Parliament, and in two weeks from taking it he has wrung from a reluctant Minister of State the promise of a committee of investigation into the state of the Flying Services.

Mr. Ledebor's comparison of Mr. Pemberton-Billing to a bubble seems singularly unfortunate under the circumstances. Mr. Pemberton-Billing's career is, so far, rather like that of a meteor. If he ultimately becomes a fixed star, so much the better. If the meteor merely turns out to be a rocket it will be regrettable, but if it is a war rocket, and if that rocket brings down that menacing Zeppelin, the Royal Aircraft Factory and its supporters at the Admiralty and the War Office, it will have done good work. And I do not fancy that Mr. Pemberton-Billing, as the aforesaid rocket, will very much care, so long as he sees the accomplishment of the reforms for which he has set out.

Mr. Ledebor later refers to the "technical Advisers of His Majesty's Government, men whose careers have been both distinguished and blameless," and who have "deprived themselves of the power of reply and of self-defence." Look soberly at the R.F.C. casualty list, Mr. Ledebor, and then try and write again of blameless careers. Think of "Ornis" of the "Times," and think of Colonel Seely and Mr. Tennant in the House, and then talk about deprivation of power of reply and self-defence. Mr. Ledebor as champion of the R.A.F. and of the Aircraft Industry at the same time is really unique. One must have a curiously double outlook on life to reconcile the two attitudes.

According to Mr. Ledebor's statement one would be led to believe that Mr. Pemberton-Billing, like some senior officers in the Flying Services, never flew after taking his certificate. As a matter of fact, he has flown on various occasions since. By a curious coincidence the Navy's Avro on which he used to fly as pilot while in the R.N.A.S. bore the official number 1031, which was precisely his majority in the East Herts election. Also, I happen to know that he has piloted a 100-h.p. Short seaplane, and alighted safely down wind after an engine failure at some thousands of feet. One doubts whether many senior officers could do as much. This, however, is merely to show the unreliability of Mr. Ledebor's arguments, for no one in full possession of his senses would judge a man's mental ability by his mere skill as a pilot.

The direct charge that Mr. Pemberton-Billing has never "been connected with the active side of the Air Service at the front" is a direct falsehood. Mr. Ledebor was apparently in a state of

oblivion as regards the Friedrichshafen raid when he wrote that paragraph.

As to Mr. Pemberton-Billing's qualifications to pose as an aeroplane designer and constructor, Mr. Ledebor apparently never saw the 50-h.p. P.B. tractor, or the funny but highly efficient biplane nicknamed the "push-prodger" while at Hendon, though both were record-breakers for their power. One assumes that though he was at Hendon when they were there, Mr. Ledebor had his back turned to the aerodrome when they were performing.

Whether Mr. Pemberton-Billing was on the Admiralty Staff, or not (as Mr. Ledebor says), does not seem to affect the question of his knowledge of R.N.A.S. organisation and administration. At any rate, he joined the R.N.A.S. to serve his country, though a married man with business responsibilities, while Mr. Ledebor, an unmarried man, did not. And Mr. Pemberton-Billing ran the greatest personal risk abroad, while Mr. Ledebor remained at home. While in the R.N.A.S. Mr. Pemberton-Billing worked harder than anyone I have met, and he left the Service because he found that the uniform tied his hands and made any attempt at reform impossible.

Finally, Mr. Ledebor deliberately distorts Mr. Pemberton-Billing's public utterances by insinuating that Mr. Pemberton-Billing cast a slur on the Aircraft Industry by accusing the industry of supplying to our pilots at the front machines which he stigmatised as "Fokker-fodder." The phrase "Fokker-fodder" was coined by the R.F.C. itself, and was used in this paper a fortnight before Mr. Pemberton-Billing used it in the House, and he then used it as I used it to refer solely to B.E.2cs, as built under protest by some firms in the industry to the R.A.F.'s designs.

Mr. Ledebor should know those facts as well as I do. I counsel him in future rather to guard his own utterances than to distort those of other people.—C. G. G.

SCHOOL INSTRUCTORS AND CONSCRIPTION.

The position of the flying schools remains wrapped in obscurity, the value of the work they have done apparently not having been appreciated by the authorities yet. Mr. J. L. Hall attested under the Derby scheme, and having appeared before a tribunal last week he was given three months' exemption. The same concession has been made to Messrs. H. F. Stevens, Anstey Chave, and C. M. Hill, the instructors at the Hall School.

One fails to see how any business is to be carried on effectively while it is under perpetual three months' notice. The Admiralty and War Office would do better to decide on closing all the civilian schools—and thus follow their usual uneconomic custom of cutting off their own most valuable sources of supply—than to keep everyone in a state of suspense.

At the Ruffy-Baumann School the instruction is done by Swiss pilots and therefore the difficulty has not arisen. This firm, by the way, took over the old Caudron Works at Old Hendon a month ago, and has already turned out three complete 50 Gnome Caudrons, which is considerably quicker than the rate at which either the Admiralty or War Office obtains school machines, when they decide to start a new flying school or to put a new "contractor" on to making school machines.

Others are well on the way, and one is being exhibited at Harrods Stores, that company having arranged to act as agents for the school and its machines. This is quite a new move and should be very helpful.

ON METALS.

In his address at the annual meeting of the Institute of Metals on March 30th, Dr. G. T. Beilby, the new president, said that in the production of airships Germany probably had at her command superior alloys of which we had no knowledge. He urged that more attention should be paid to the industrial side of metallurgy. [A voice crying in the wilderness.—Ed.]

PROTECT OUR AIRMEN.

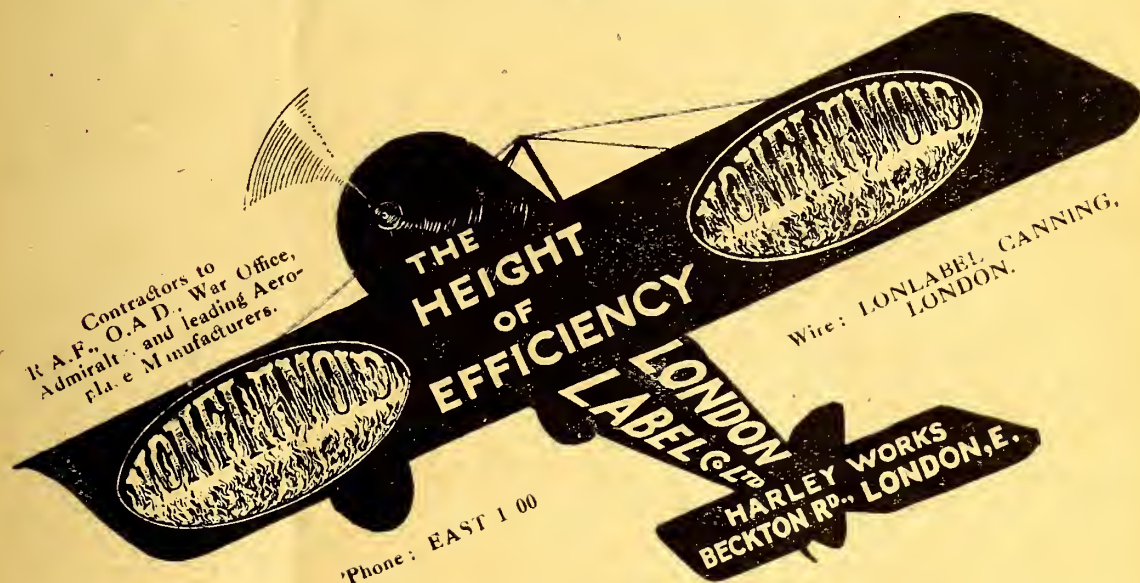
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AT QUESTION TIME.

On March 28th **Sir A. Markham** asked **Mr. Tennant** whether R.F.C. huts at Castle Bromwich, Birmingham, were built on a sewage farm. Mr. Tennant tried to wriggle out by saying that the sub-soil was gravel—as if that made any vast difference when the soil on which the huts were built was solidified sewage. Mr. Tennant denied that the huts were so built, but his evidence was not conclusive.

Mr. Billing asked the Under-Secretary of State for War whether, since a recent raid on the North-East Coast, any special guns have been erected on the roof of a certain municipal building in a North-East Coast town?

Mr. Tennant: The mounting of guns for defence against aerial attacks is not a subject on which information can be given in the most public manner possible—i.e., in an answer to a question in this House.

Mr. Billing: May I ask whether the mounting of wooden guns is a question on which an answer could be given in the public interest?

Mr. Tennant: No, Sir, I do not think it would be.

Mr. Bennett-Goldney asked the Under-Secretary of State for War if he can say whether any and, if so, how many of our airmen were injured when they went up in pursuit of the enemy during the recent Zeppelin and aircraft raids; and, if so, if any such injuries were due to the action of the enemy or to any preventable causes?

Mr. Tennant: There were three casualties to officers of the Royal Flying Corps. The injuries were not due to the action of the enemy, nor to any cause which was, at the time they were incurred, preventable.

[Two valuable and highly trained officers have since died. The accidents would have been preventable if properly equipped machines and grounds were available, as they should be.—Ed.]

Mr. Bennett-Goldney asked the Under-Secretary of State for War if he can say whether the Government War Committee known as the Derby-Montagu Committee, or any member of it, has approached the hon. Member for East Herts with a view to his becoming a member or adviser; if any such invitation was given and not accepted, if he can say if any reason was given for the refusal; and if he will say whether this Committee possesses power to add to its numbers or whether additional appointments rest with the Secretary of State for War?

Mr. Tennant: I understand that the hon. Member for East Herts was asked to give evidence before the Committee presided over by Lord Derby. He replied that no useful purpose would be served until this House had satisfied him upon the powers and authority of the Committee. No invitation has been given to him to become a member or adviser to the Committee.

Mr. Brookes of Mile End and **Sir A. Markham** asked about the German seaplanes brought down on March 10th.

Dr. Macnamara in a written answer said: So far as the Royal Naval Air Service is concerned, only one enemy seaplane was brought down.

I take this opportunity of referring to the gallant conduct of Flight-Commander Bone, who, in a single-seater land machine, pursued this enemy seaplane to a distance of 30 miles from land, where he drove his opponent to the water, killing the observer. He was then compelled, owing to shortage of petrol, to return to land.

As to the ultimate fate of the enemy machine, there is in the circumstances no definite information.

[One may add that the observer was seen to be hanging helplessly over the side of the fuselage, so the assumption is that he was killed. The machine was then at rest on the water, but may have been towed in by a German patrol boat.—Ed.]

Mr. Bennett-Goldney asked the Under-Secretary of State for War if his attention had been drawn to the fact that the high grade steel used in the German aeroplane engines is more suitable for its purpose than the steel used in the Royal Aircraft Factory for similar purposes; if he is aware that this steel is virtually the same steel as that used by the Germans some years ago; if he can explain why, in the circumstances, this House was informed by the War Office that we were ahead of other nations in aeronautical knowledge; and why we have taken no successful steps to obtain or produce similar steel at our own aircraft factory or elsewhere?

Mr. Tennant: Only experimental engines are produced at the Royal Aircraft Factory, and there is no reason to believe that the quality of the steel used there is inferior to the steel used in the German engines. The composition of the German steel is known to us. The Royal Aircraft Factory does not make steel. The steel used in British aeronautical engines is obtained from British manufacturers. The War Office, in conjunction with the Admiralty, have taken active measures in the matter of investigation of production of steel for aircraft by obtaining a Treasury Grant for technical research to be carried out by the Institute of Automobile Engineers and the Society of Motor Manufacturers and Traders, and by assisting in the institution of a committee of air-

craft steel manufacturers in Sheffield and a committee of stampers in Birmingham.

[Mr. Tennant's reply is, as usual, a quibble. The steel used by the R.A.F. may be superior to German steel and yet, owing to R.A.F. ignorance, less suitable to its purpose—as, for example, when the R.A.F. wasted some hundreds of pounds in having crank-shafts made of tool-steel. Mr. Tennant's reply insinuates that the blame is laid on "British manufacturers." As a matter of fact the manufacturers have to use exactly what material the R.A.F. specifies. Which accounts for the failures.—Ed.]

THE DEBATE.

In the debate on the Consolidated Fund (No. 2) Bill on March 28th, **Mr. Dudley Ward**, who appears to hold some sort of Naval or Military command in the Isle of Thanet, took some time to tell **Mr. Joynson-Hicks** that his account of the muddle at Deal and Ramsgate during the German invasion on March 19th was entirely untrue, and that the local municipal authorities were libelling the high-souled R.N.V.R. or other officers responsible for their defence. Mr. Ward seemed rather angry.

Mr. Joynson-Hicks justified his statements and produced evidence that Captain Tomlin, whose duty it was to issue raid warnings at Ramsgate, did not leave his house till after the bombs had fallen, also that after the raid was over this officer was driving about the town with two ladies in a motor-car showing them the damage, and very grave comments were made by the people of Ramsgate, who demanded an inquiry.

Mr. Marshall corroborated as to the ineffective measures for warning and defence, and advocated the stationing of quick-climbing aeroplanes at points where they can intercept invaders.

[A perfectly sound idea and one which any sensible person would have adopted a year ago. It must be remembered that precisely such a machine as is required was offered to the Admiralty eight or nine months ago, but was turned down by Commodore Sueter and his "expert" advisers, and has only recently been approved after the reiterated agitation of active-service pilots.]

MR. PEMBERTON-BILLING'S INDICTMENT.

[Mr. Pemberton-Billing's speech is again reported *verbatim*, subject to some excisions in order to economise space. It is the most deadly indictment yet made against the Government on aerial matters, and if adequately followed up will force forward very materially the many reforms which are so badly needed in both the Flying Services. In dealing with Mr. Tennant's reply it has been thought better to comment on each point raised by him as it occurs, rather than to wait till the end of his speech and refer readers back on every point.]

Mr. Pemberton-Billing: I will take this the first opportunity of answering the challenge of the right hon. Gentleman the Under-Secretary of State for War with reference to my speech in this House last week. The right hon. Gentleman made a rather passionate attack upon me. I suggest it would have been better to give a dignified and complete denial to my charges, instead of replying simply to the one dramatic note I struck on the question of our pilots being murdered rather than killed owing to their being asked to accomplish tasks which the machines were incapable of accomplishing.

Since my speech in the House last week I have been inundated with letters from gentlemen anxious to support me with documentary and oral evidence. While it is not my present intention to mention names, I am perfectly prepared either to place the evidence I have here, which contains names in all cases, on the Table of this House, or to show it privately to any Member in the Lobby. I propose to read to this House extracts from several letters received by the father of one of our gallant officers who has since, quite recently, met with one of the regrettable accidents I have referred to, in which he unfortunately lost his life, thus robbing the country of one of our most capable airmen. The accident in question is as follows: The officer was so dissatisfied with the machine, which had recently been repaired, that he would not allow any pilot under him to fly that machine unless he personally proved it. The proving cost him his life.

The same officer before his death, writing from Dover to his father, said:—"It is not only a war flight base, but a school."

This officer also stated, and I can substantiate the statement referring to the Dover aerodrome, from personal experience:—"This is a very devil of a place to fly in. The aerodrome is situated on top of the cliffs and on two sides we have a beastly drop. If one's engine fails when getting off, the best thing one can do is to pray and hope the bump won't be too big when it comes. I was nearly caught this way to-day."

The aerodrome is unsuitable and absolutely dangerous for the training of young pilots who frequently arrive there and are put immediately on fast war-flight machines, never having flown anything more than a box-kite. Referring to another incident, he writes to his father:—"Yesterday my engine back-fired. Trouble, inlet valve. The same thing happened at Lewes. Carburettor caught fire. Most unpleasant. One gets cold feet. Sooner come down with a bump than be cremated in the air."

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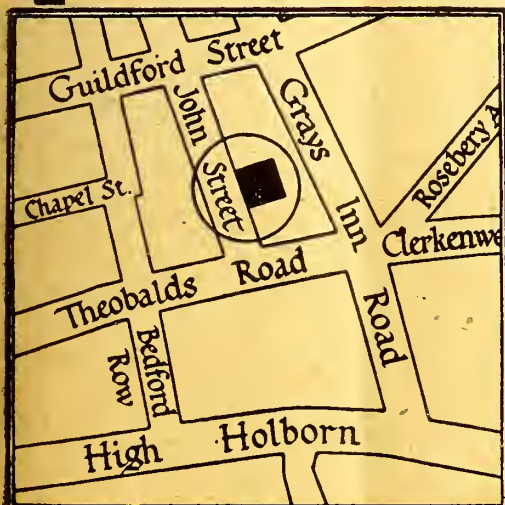
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These all have reference to machines to which I will refer later on, the engines of which are considered by most of the pilots to be unsafe and unsuitable. This officer was later sent to Hendon to take a war-flight machine to France. I will read an extract from his letter:—"After spending some days at Hendon, trying to get the machine air-worthy, in desperation I started off."

He writes later:—"My engine most alarming. Very busy looking for possible landing ground. Ran into rain clouds. Very wet. Seeing hardly anything. Engine started to give up ghost. No pressure in tank. Had to come down. Spent whole afternoon trying to get beastly engine to go. Awful dud."

This officer eventually arrived at Folkestone by perseverance and courage, despite assistance from those responsible for the machine he was obliged to fly. He reports later:—"Took the air from Folkestone. Still in the dud B.E.2c. At 3.15 circling round for fifteen minutes trying to get 2,000 feet. At that pushed off across Channel. Engine developed alarming vibration. Hardly hoped to reach other side. Arrived Calais at 1,500 feet. Struggled up coast to here."

Any Service man will know that a machine which is only capable of rising up to 2,000 feet in fifteen minutes is not a very suitable machine in which to start off across the Channel. The alternative is to come down, and be accused of being a coward, or push off across the Channel, and chance diving into the Channel, and thus causing a loss to this country of another valuable life.

He also writes:—"Two days later B.—." I will not mention the name—"flew my B.E.2c. and the beastly thing caught fire."

From the father of that officer, who is a most respected citizen, I have received the following letter:—"Dear Mr. Pemberton-Billing.—In pleading the urgent and vital necessity of furnishing our flying men with the most reliable machines that brains, money and energy can provide, I consider that you are performing a great national service. My son, who served as an officer in the Air Service from the outbreak of war until the time of his death, repeatedly told me that with (to use his own expression) the 'dud' machines they were frequently called upon to fly, if they were not killed in action, it was only a matter of time before they would meet their death from accident, and this view I have had invariably confirmed by the large number of flying officers with whom I have come in contact. In fact I know that many pilots consider the risks from having to fly faulty machines greater than those actually incurred in meeting the enemy. It would therefore appear obvious that a superhuman effort should be made to diminish this risk, and surely such an effort should command universal support."

[It must be remembered that these "dud" machines have all been approved by Commodore Sueter and his "expert" advisers, and not by active-service pilots.]

By way of comment, I might inform the House that our machines are dispatched to France in most cases as aeroplanes only. On their arrival the local squadron smiths do their best to convert them into weapons of war. A gun is stuck here and a bomb is hung on there. The performance of the machine loses 10 to 20 per cent. of its efficiency. For example, the official speed of a B.E.2c. is something less than 80 miles an hour. That in all conscience is bad enough when that machine is called upon to fight a Fokker or other German machines with the speed of 110 miles an hour, whereas, by the time it has been turned into this travesty of a weapon of war, its speed is reduced to about 68 miles an hour.

I stand in this House to-day with a list, which I have compiled very rapidly and which I grieve to say is far from complete, of over 150 deaths, over 116 wounded, and over 105 men who are numbered among the missing. With regard to the men who have died, they can, in most recent cases, be referred to as "Fokker fodder." In almost every case they have been shot down on hopelessly outclassed machines by the immensely superior machines which the Germans are bringing against them.

Not twenty miles from here there exists the finest machine the world has ever seen, far finer than the Fokker machine, finer than anything the Germans have produced, and yet we are content to order this aeronautical rubbish in thousands. [It may be well to point out that Mr. Pemberton-Billing was not referring to his own machines, but to Sopwiths and Martinsydes.]

We are prepared to order machines from the Royal Aircraft Factory, with engines unproved and untested, and order pilots into the air to meet their death. Those men who have only been wounded owe their lives to Providence, despite official negligence and incompetence, but the missing in all cases have been lost to this country on account either of "dud" machines or inefficient engines.

I will now deal with a few typical cases from the list I have here. I would not wish to shock the House with more cases than are absolutely necessary to prove conclusively my statement of last week. I will deal with one or two cases of men who have been killed in the recent fighting. If the Under-Secretary would like these men's names, the machines they were flying, and the place and date of their death, I shall be very pleased to assist him at his convenience.

No. 1 is one of the first deaths in the war, though there have

been many deaths owing to official negligence before the War. Side-slip owing to being sent off in a badly overloaded Blériot machine. He suggested before leaving that an accident would occur. Accident occurred and the pilot died.

No. 2. Side-slip, nose dive; bombs blew up everyone on board machine. Similar to that which killed two pilots previously. Liable to uncontrollable spirals.

No. 3. Passenger with Lieutenant S. B. Same accident, but bombs did not go off. Both killed.

No. 6. Victim of engine failure. Lost at sea.—This question of engines is a question of life and death to our pilots, and if the mandarins are allowed to order any engines which they think fit to order when they are not competent to decide, and if our pilots have to be driven into the air with these engines their lives are being needlessly endangered.

Another case: Shot down by one of our own machine guns through the obstinacy and stupidity of a brigadier of our own. Two men killed.

Shot down near Dixmude. Machine overweighted. Should never have gone over the lines.

Case 11. Machine caught fire in air with experimental R.A.F. engine. Bombs on board burst; pilot burned to death in the air.

Case 14. Lost at sea flying home on leave.—It is a very pernicious habit in France, that where there is an old machine which they want to get back and which is no use for any further service and a pilot is going home on leave, if he likes to go home in it he can do so. It is a dangerous habit to endanger a valuable pilot's life to get an old creak of an aeroplane back to England and thus save transport.

No. 16. Machine known in the trade to be dangerous, collapsed in the air, killed the pilot.

No. 18. When landing nose dived; engine failure over sea.

No. 19. Bombs blew up when landing. Killed.

No. 20. Side-slip. Pupil without experience. Should not have been flying alone. Killed.

No. 24. Spiral dive 300 feet over the sea. Killed.

No. 30. Shot down, flying low, in bad weather. Died of injuries. Ordered out on bomb raid in the dark and rain.

No. 32. Drowned or killed in a side-slip through overloaded machine.

No. 34. Killed in a side-slip. Typical of this type of machine.

No. 35. Died of wounds received because of machine being unable to climb after coming down low to drop bombs. Engine weakness again.

No. 37. Both lost at sea. Engine failure presumed.—It will be generally accepted, when a machine is lost at sea, that the engine has failed.

No. 43. Killed. Reported death was caused by bombs exploding in the air.

No. 45. Killed landing in a morning fog after flying all night in a fruitless search for a Zeppelin. The usual officially overloaded machine was unable to land slowly and turned over on its nose.

No. 46. Machine hit by German shell while on water after being brought down by engine failure.

No. 47. Fell out of machine in the air, propeller broke and cut the tail in two.—This was a most regrettable accident. It happened to a young man who had just succeeded in winning the Victoria Cross and the cheers and admiration of this entire Empire—a most regrettable and most unnecessary accident. If the First Lord of the Admiralty would like full details, he shall have them.

No. 48. Brought down by engine failure. Killed on landing.

No. 49. Engine broke in the air, side-slip and dive.

No. 60. Killed in the dark after futile attempt to find Zeppelin. No light for landing.

At present men are driven up into the air on machines in which the engine and propeller are in front and the pilot is unable to see except on his extreme right or left. They are ordered out at night and have been told repeatedly to bring out their machines in a thick land fog. Someone runs up with a few buckets and puts petrol in and lights it, and that is the only light they have got. Recently a few searchlights, more dazzling than ever, have been produced. These men are driven up into the air, and quite recently, on the occasion of a Zeppelin raid, it was found that there were no arms. They must go up. They were driven into the air with this machine they could neither see nor shoot out of, and the armament in one case was a revolver, and in another a Winchester repeater rifle. What justification is there for driving our pilots in the air so armed and so equipped, and in such machines as they cannot see out of, simply to answer public clamour or to save the face of official folly?

No. 67. Brought down by engine failure. Killed. In this case the machine was totally unsuitable for the type of work. The men ought to have been sent out in a proper water-cooled engine.

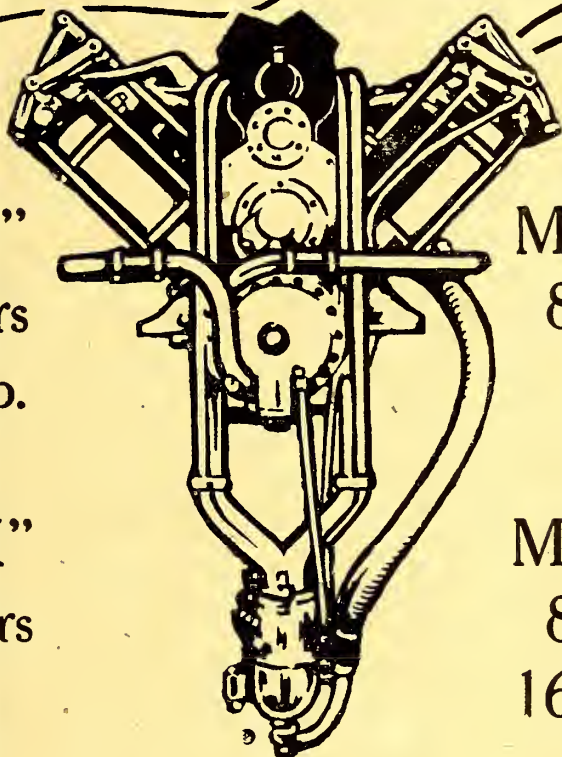
No. 70. Killed while testing a type of machine condemned by the French six months ago.

No. 71. Killed owing to defective engine. Nose dive. Caught fire. Pilot burnt to death.

No. 76. Killed by his own bombs exploding after landing in dark, after searching for Zeppelin.

No. 80. Machine caught fire on landing. Pilot died.

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No. 94. Killed in a side slip with worn-out machine.

No. 99. Killed passenger. Engine failure. Side-slip and dive.

No. 104. Two officers, observer, and pilot, both killed on photographic duty because they were hopelessly outclassed by the enemy machine. They had no fighting machine with them to protect them on that work.

I ask the House to imagine a pilot in a groggy old machine, tottering into the air over the enemy's lines, knowing he has only about 72 miles an hour in hand, nothing but gadgets all round him which these official experts love to load onto our otherwise efficient machines. He has no guns as the Germans have guns behind them and in front of them, and he sees an enemy aeroplane which has two guns, one fitted for firing dead ahead through the propeller, and one dead astern, and which can fly not 72 miles an hour but perhaps 110 or 120. You feel this machine circling round you, diving and shooting up and rising above you and you are helpless as a duck, absolutely ready to be shot down. When you think that these men have proved themselves to be not only the most able but the bravest aviators in the world, when you think they are driven into the air to be slain like that, it is difficult to find a better word than the one I chose.

I do not want to exhaust the House, but I have 105 cases of missing officers. All of these men, had we had decently engined machines, would either be in this country or fighting our battles in the air to-day, instead of which they are suffering the in-

dignity, which I understand in some cases is even worse than death, to which prisoners of war in Germany are treated.

Here is one case. Two of the most able officers in the Service were sent up on a long reconnaissance in an old machine capable of doing seventy-five miles an hour, with a strong wind behind it. One officer said before he left that although he could get there he would never get back, and his words proved true. The machine never returned.

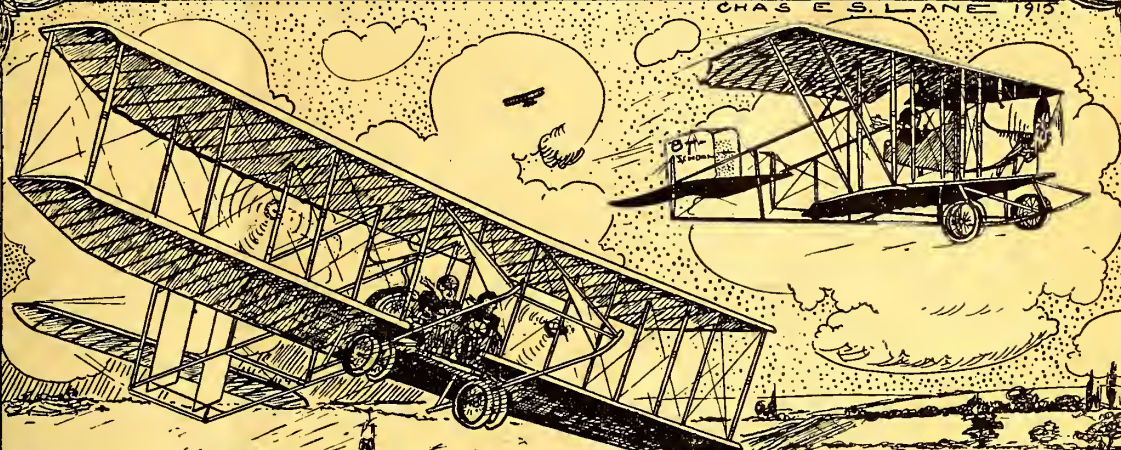
The cases of wounded are almost too numerous to mention. Here is one in October. A machine was flying for photographic purposes over the enemy's lines and both pilot and passenger were shot. Hon. Members have read something of that case. Although the pilot was shot, the observer managed to struggle into his position and landed the machine within our lines.

DUAL CONTROL.

For the past two years people who really understand, but cannot obtain a hearing, have been advocating that no machine should fly under any circumstances whatsoever unless it is fitted with dual control. There is absolutely no reason why this should not be the case. It means that if a machine is flying over enemy country and the pilot is shot, the observer can take charge. Any man who has flown for ten minutes in a dual control machine can bring it back to earth, perhaps with a little bit of a crash, but he can guide it back again. It means that not only will valuable information be saved and brought to our generals, but the life,



FROM SOME CIVILIAN SCHOOLS.—(1) General Lewis Hall, C.B.; Messrs. (2) Clifford Ross; (3) Wilcox; (4) Sargood; (5) Lewis; (6) Warren, jun.; (7) Little; (8) Ellis; (9) Gayner; (10) Brain; (11) Barnes (All L. and P. School). (12) Spicer; (13) Begg (Beatty School). (14) Broad; (15) Liddell; (16) Gardner; (17) Thomson; (18) McBain; (19) Stewart (Ruffy-Baumann School). (20) Jowett; (21) Cosgrave; (22) Drew (Hall School). (23) Browning-Paterson; (24) Nicholson (L. and P. School).



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perhaps of a pilot and certainly of the observer, and the machine itself might be saved from total loss.

I should like any hon. Member to picture himself in a machine, absolutely alone, walled in by wires, with a pilot somewhere behind. He hears a gasp and a cry and turns round and sees that his pilot is dead. He is sitting there helpless at 11,000 feet, the machine diving and sheering in all directions, and knows that the moment will very soon come when she will get into a nose dive and he will crash from thousands of feet and be smashed to pieces simply because of the foolish folly of those officials who do not understand and will not be taught that dual control in such a machine would have saved that man's life. I should like to have on the floor of the House one of these men who have been through one of these terrible death dives to tell right hon. Gentlemen on the Front Bench what it feels like.

No time must be wasted. However important the Debates in this House may be, our national existence depends on the issue of this subject, if not to-day, in the days to come. I would like to suggest that if this House does not take that view to-day, even to-night some of our gallant officers may be slaughtered, if the Zeppelins choose to visit this city or this country. All around London are these cursed old creaky machines, these badly-lighted or unlighted aerodromes, and these heroes sitting waiting to be driven up into the air to save the face of those who are set in authority over them, and who have failed them every time.

I would like to suggest that no time should be wasted, and that immediate inquiry be made into this charge, which I have answered, I trust, to the satisfaction of the House.

It is indeed difficult to speak on this question without a certain amount of perhaps unnecessary emotion, as it may seem to this House. It is extremely difficult, even in law, to draw a hard-and-fast line between murder and manslaughter, or between manslaughter and an accident caused by criminal negligence. When this negligence is caused by the official folly of those in high places, coupled with entire ignorance of the technics which in this case can alone preserve human life, official folly becomes at any rate criminal negligence. When the death of a man ensues, the line between such official folly and murder is purely a matter for a man's conscience.

Sir Alfred Gelder: I feel very strongly on this question, that the Government after two years of war have not made the efforts which are essential to meet the attacks of Zeppelins around our coasts and in these islands.

We were told by the then First Lord of the Admiralty that if the Zeppelins did come they would be met by such a host of hornets that they would not have a chance of escape. So much for official statements.

[And we should have had that swarm of hornets but for the "experts" in the Construction Department at the Admiralty.]

I have had a little experience in approaching the authorities and trying to move them, but I must say that I have almost hopelessly failed to make any impression upon them. We are banded about from one Department to another, first to the Army authorities and then to the Naval authorities, who are blaming each other, and, as a result, we cannot get any further forward in our efforts on behalf of the defences of our country. . . . I remember a year ago that there was a certain raid on an East Coast town which did very much greater damage than the Press Censor ever allowed to be published. When that raid took place I was within 250 or 300 yards of the dropping bombs. I was near enough to hear the cries and shrieks of the people, and I never want to be in such proximity again. I am not a representative of Hull, but I am a resident of Hull, and I thought it my duty to do everything I could to meet this difficulty. I wrote to the First Lord of the Admiralty, and I got the usual reply, that it would have attention. I was not satisfied with that reply and I put a question down in the House. That question was not put on the Paper, but my right hon. Friend the Secretary to the Admiralty (Dr. Macnamara) saw me, and very kindly said, "My dear fellow, you do not want to give any information to our opponents, the Germans. You do not want to do anything to damage your country. The question that you have put down is not a wise one to put in the House. I will make better arrangements for you, and I will arrange that you can call at the Admiralty and see those who are responsible for the Air Service on the East Coast."

I am thankful to say that I did so at the request of the right hon. Gentleman. I asked the reason why there had been no attempt whatever to defend the coast from air raids. The answer I got was, "Well, it was not in our Department then." It had been a year in the hands of the Army authorities, who had done nothing. Of course, the naval authorities were not to blame. I said, "What about the future?" They replied, "In respect to the future we intend to make the Air Service on the East Coast efficient. We intend to provide your large towns and cities with aircraft guns." I went so far as to discuss with them some suitable places for aerodromes in the vicinity of one large centre of industry.

From that time we lived somewhat in a state of security. We thought that some effort was being made on our behalf. We did not inquire too closely into the matter, but we found that a week or two afterwards one or two motor aircraft guns were paraded

through the streets of the city. We naturally imagined that they were for our defence, and the people were very delighted.

The matter was in the hands of the Admiralty for nine months, and at the end of that time in the same East Coast city there was another raid of a very terrible character. I only wish those of my Friends who live in secure places and who can look at this question philosophically could have an experience similar to what we had on that occasion. It is all very well to be brave when you have the power to reply. It is all very well if a man feels that he can hit back. Then his courage rises, but when you feel you are up against a power and you have no reply to it, the bravest hearts are liable to quail. At all events, I am free to confess that when I stood on my doorstep and saw bombs dropping two hundred yards away, and thought that perhaps the next would drop on my head, and I had my wife and family near me, I felt that I could have fled anywhere and hid in any corner to be safe. This is not an isolated experience. It has been the experience of every man under similar conditions. There was a man who was on the flat roof of one of the hotels and a bomb dropped within 30 yards. That man was a soldier, and he said, "I have been in the trenches in France. I have been under the thickest shell fire, but I never felt so hopelessly helpless and so weak as I felt when this shell dropped near to me and I had no power of reply."

Therefore, when hon. Members rise to speak I would just ask them not to think that we are cowards. Let me tell you that the men on the East Coast, from Newcastle to Essex, and down to the South, are as brave as you on the West Coast, and we will stand our corner.

Within a few days of the promise that I received from the Admiralty on one of the large engineering works in our city a gun—a solitary gun—was fixed, and a military guard was mounted by day and night over that gun. We all thought that that was part of the equipment to protect our city, but we found afterwards that it was only a dummy gun.

It was not done for a joke. Was it done in order to convey to the Germans the idea that we were fortified? It might be, although I think that is a very far-fetched idea. I think it was done to allay the fears, the suspicions, and the anxieties of the people. If it was done for that purpose, such deception was unworthy of our military authorities, and unworthy of any General Staff which allowed it to be done.

Mr. Pemberton-Billing: To save the Government's face.

Sir A. Gelder: We have been told with respect to the Press censorship that our statements are incorrect. The Under-Secretary of State for War told the hon. Member for East Hull (Mr. Ferens), when he asked a question the other day, "I cannot realise that your statement is quite correct. I have got some official statement"; while the hon. Gentleman (Mr. Ferens) had in his pocket the coroner's statement at that time showing how many had been killed, and the number was far in excess of what had been stated under the Press censorship.

We are told not to name the places. But on that occasion, three months ago, it was said that a certain North-East Coast town was bombed, and then there was a German naval communication which said that the naval base of Hull had been successfully bombed. What is the use of a censorship like that keeping from our own people what we are told when it comes from Germany? I am sorry if I have spoken with some heat, but I feel very strongly on this matter.

Mr. Lynch: Before the Debate on the Air Service closes I wish to say a few words with a perfectly definite meaning—that is, to advocate a large aeroplane fleet, far larger than anything yet held in contemplation by the Government. . . . Unfortunately one cannot improvise Zeppelins, and we would immediately place ourselves in a condition of inferiority by the very fact that we were imitating the Germans in a field in which they have shown exceptional genius and exceptional organising power, and in which they have now some years of experience. . . . One great advantage that the Germans already possess is that they have all this great work of Zeppelin construction superintended by Count Zeppelin himself, a man not only of great mechanical genius but a man who has had the hardihood and perseverance actually to work as a workman in the different branches of construction so as to make himself perfectly familiar with every detail of the technique. Whom in this country would you put in a supreme position corresponding to his? Some man with a big name, perhaps with a big title, perhaps totally inefficient, but whose blunders and shortcomings of every description would be covered up by some representative Member in this House. Therefore I say that policy, however attractive, and by whatever arguments it may be put forward, should be definitely abandoned.

I believe, therefore, that the Zeppelin menace can be completely met by the construction of suitable aeroplanes. In the first place, the aeroplane can rise more quickly than the Zeppelin, that is to say, an aeroplane built for that express purpose. Secondly, an aeroplane can move faster than a Zeppelin—I will not say every aeroplane, but it is within our power to build aeroplanes whose speed would exceed that of the greatest Zeppelin.

The aeroplane presents a far less surface as a target, while it is in every way more manageable, more easy to turn, and can be

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moved very easily and very quickly. For the money which is required to build one Zeppelin a great number of high-power aeroplanes could be built so that the force we would have in those aeroplanes would far more than counterbalance the advantages of the Zeppelins.

The proposal I now make is not to take the Air Service entirely out of the Army and Navy, but rather to develop even more strongly those branches which are necessary to those particular Services; but, independent of them, altogether, to form a new arm with a definite task in view, with a definite objective, with a definite plan, a definite course of action.

I would say that whereas even up to the present the Air Service, regarded as an offensive arm, is scarcely realised in the various sporadic raids which have been made, yet those sporadic raids correspond more to skirmishing attacks which may be useful in feeling the strength of the enemy, but are useless for the main objective, that of driving a way through the opposing force, and so shattering it as to make it the turning point in the whole course of the campaign.

No matter what objections the Government may put forward with regard to material, to finding pilots, to administration, and so forth, if you put a competent man at the head of the Department specially created for that purpose all these objections will be found to vanish. Some can be removed, some analysed, and the mere red tape administration could be borne down by sheer force of character. Once you have this fleet of 10,000 or 20,000 aeroplanes you would be masters of the situation. The enemy would not be able to take the offensive, and you would be stronger, and become masters of the air, just as after Trafalgar this country became mistress of the sea.

[Captain Bennett-Goldney, Sir Arthur Markham, Sir W. Pearce, Sir Alfred Mond, and Mr. Hogge all joined ably in the attack on Government ineptitude, and its "hide-the-truth" policy, but there is, unfortunately, no space available for their speeches.]

Mr. Tennant: May I, at the very outset of my remarks, observe that I am well aware, sadly and melancholly aware as any man can be, that mistakes have been made? I am perfectly free to confess that, and if I do not say it every other minute, I hope I shall not be accused of not recognising it. I do not think it is the business of any Minister who stands here to represent a great Department in the middle of a great war to appear perpetually in a white sheet.

It is not correct to say that the men of the Royal Naval Anti-Aircraft Corps have been replaced by men of the Royal Garrison Artillery. That is the first mistake. I have consulted the Field-Marshal Commanding-in-Chief, and these are his words. This is the explanation of the idea which has gained currency:—

"As new guns and new lights are erected in the section of the London defences belonging to the Royal Naval Anti-Aircraft Corps they are manned by the personnel of that corps. This necessitates the transfer of large naval personnel from other sections of the defences, and the places of the men transferred are naturally filled by military personnel. Were this arrangement not adopted, each section of the defence would be manned partially by naval and partially by military personnel. This is undesirable for many reasons, and the Field-Marshal's decision to concentrate all the naval personnel into one section is obviously the only practical one to adopt. The section into which the naval personnel is being concentrated was selected with a view to causing the least possible disturbance of the Royal Naval Anti-Aircraft Corps. It may be asked whether the transfer of personnel for the gun or light to which they are accustomed to a new gun or light does not affect their efficiency for some time. The answer is that as the new gun or light will be of the same type as the gun or light from which they are transferred, no loss of efficiency should arise."

Then on another point, in relation to the age of the personnel referred to, I am told:—"It is no doubt difficult for people unacquainted with the work of anti-aircraft artillery to realise the physical strain to which a gun's crew is put if the maximum rate of fire is to be obtained from a quick-firing gun. Men over forty cannot develop a rate of fire of from 15-20 rounds a minute. This is the rate of fire it is hoped to obtain from the guns now being mounted. Such a rate can only be obtained by men physically fit and in the highest state of efficiency. To ensure that gun's crews will obtain the necessary efficiency the Field-Marshal has already organised an Anti-Aircraft Training Depot, at which every gun's crew will practise periodically under active service conditions at night with guns of the same pattern as those they man in their own defences."

A general allegation has been made as to the deficiencies of the permanent Royal Flying Corps, particularly in its comparison with those of our enemies.

What had really been the surprise had been not that the Germans should improve their air service, but that they should not have done it long before. I think that that is perfectly true. I know it experienced a certain amount of comment outside, but anyone who really knows what did occur at the front during the first nine or ten months of the war knows it to be a statement of fact. It used to be said, for instance, in the early part of the war, by the Flying Corps, that "if you point

an old Maurice at a Hun he goes to the ground at once." That was moral ascendancy, much more than anything else. The hon. Gentleman the Member for Brentford (Mr. Joynson-Hicks) is quite aware of that and, probably, if he would consult his experts as to what occurred in the early part of the war he would say that that ascendancy was due not to the superiority of our engines over those of the Germans—

Mr. Joynson-Hicks: It was due rather to our men.

[Probably the chief reason was that the German aircraft were there to scout and spot and were ordered not to fight.]

Mr. Tennant: I am not at all sure that our designs were not better then and are not better to-day.

[Our designs are better, apart from R.A.F. designs, but they are not at the front in quantities as they ought to be and as they would have been with intelligent management of the R.F.C.]

I want to say this, that when the Germans did make their effort two or three months ago we were infinitely better supplied, both as to numbers and material, and the quality of the officers was as good as ever, so that we did not fall upon an unhappy moment when they made their new development. On the other hand, it did come slightly as a surprise; we had been going on for nine months without anything happening, and, of course, when their new trick, if I may so call it, or new development occurs expect every one of our aeroplanes to be faster than those of the moment, a certain amount of advantage through the novelty of their new methods of warfare.

For the moment the majority of the German aeroplanes are probably faster than the majority of our own. But we cannot expect every one of our aeroplanes to be faster than those of the Germans. I do not know what the House does expect, but certainly we expect to have as good aeroplanes as the Germans, and if possible a larger number of superior ones. That, at any rate, is what we hope for, but to say that at any particular moment every one of our aeroplanes shall be faster than any German machines is, I think, an impossible position.

[We should have been superior all round if the right machines had been ordered when they were offered to the Government.]

Mr. Joynson-Hicks: Does the right hon. Gentleman say that is the position now?

Mr. Tennant: I am saying that, at the moment, the majority of the German aeroplanes are probably faster than the majority of our own, owing to their higher engine power, but this state of affairs is being gradually altered.

The Member for Swansea (Sir A. Mond) asked me whether we had aeroplanes for different purposes: whether, like the White Knight in "Alice in Wonderland," we armed them for all kinds of purposes, and thus practically impaired their power to serve the country. I should like to assure the right hon. Gentleman that this is quite a mistaken idea. There are large numbers of reconnaissance aeroplanes, and they are very similar to the German reconnaissance machine. There are also large numbers of fighting aeroplanes which are used as escorts, but some being single-scaters are unsuitable for reconnaissance purposes, and particularly for artillery observation. What I want the House to realise is that of course we have aeroplanes for different purposes, and have had for a long period of time.

[A long period of time after the Germans had them.]

My right hon. Friend asked me about the Derby Committee. That Committee has been really set up as a Sub-Committee of the War Office—as an Advisory Committee to advise the War Office on various matters of policy in connection with materials, and it will be instrumental, it is hoped, in co-ordinating the duties of the service between the Admiralty and the War Office. Therefore, when my right hon. Friend accuses us of being separated in water-tight compartments one from the other—the Admiralty from the War Office—I would point out that this very machinery is designed to alter that state of things, and I venture to think personally it will have that effect.

One other point was raised by my right hon. Friend. He put into my mouth a statement which I hope I did not make, and which was that the Commander-in-Chief was satisfied with the number of aeroplanes and personnel which he had. That was not what I intended to convey to the House. I intended to say that the Commander-in-Chief was satisfied with the Air Service which he had. But that does not mean he would not like it to be larger.

[The C.-in-C. does not realise the difficulties under which the R.F.C. operates; or he would not be satisfied.]

I am habitually trying to inform the House that we are endeavouring to the best of our ability and with the greatest energy to do every mortal thing which human ingenuity can devise in order to bring our aircraft and our Air Service up to the standard which is proper and which can be demanded by the public as well as by the commanders in the field. [Every mortal thing except take the advice of active-service pilots and of aeroplane and engine designers who know their business.]

Sir A. Mond: I should like to know whether it is not a fact that the Rolls-Royce firm offered to put up new works in order to build a larger number of machines than had been ordered, and were informed that that was not required?

Mr. Tennant: I think that that is not the case, but I should

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not like to say more without consultation, as I cannot give an absolute assurance on the point.

I come to the speech of the hon. Member for East Hertfordshire (Mr. Pemberton-Billing). He spoke with some heat, with what he described as emotion. I think it is always a pity to engender heat in such matters. It is very apt to be subversive of light, therefore I shall endeavour to follow him without it. He spoke of ignorance and intrigue among the high officials of the War Office. That is a matter on which I have better means of ascertaining the truth than the hon. Member. I will assure him, if he will take my assurance, that he is wholly misinformed.

Mr. Pemberton-Billing expressed dissent.

Mr. Tennant: Of course, if he will not take my assurance it is no good my giving it to him. Then I shall have to deal with his statements in detail. He spoke, for instance, of the aerodrome at Dover. I do not know whether he was alluding to the aerodrome under the Military Wing of the Royal Flying Corps or not. If he was, all I can say is that it is one of the very best aerodromes we have got.

Mr. Pemberton-Billing: I was referring to the naval aerodrome. Last week I put a question in regard to this aerodrome to the First Lord of the Admiralty, who answered it, and to-day I put the question to the Under-Secretary for War, both as to the military and naval aerodromes.

Mr. Tennant: I am not able to speak for the naval aerodrome, but as regards the military aerodrome I am informed that it is one of the best in the possession of his Majesty's Government.

[It is good enough for a war squadron of trained pilots, but an absurd place for a school.]

I would like to disillusion the hon. Gentleman with regard to the factory at Farnborough. It is not a producing factory in the sense of producing large numbers of engines or their parts. It is a factory to assist us in the manufacture of designs. We do not produce quantities there, and it is not a manufacturing plant.

[Then why the huge buildings and the thousands of workmen, mostly idling their time away and drawing overtime pay for it? And is it or is it not true that F.E.s. are being built in quantities?]

In the speech of the hon. Member there was a long category of very melancholy casualties. I need hardly tell the House that when you are dealing with a very dangerous occupation like flying, at a very dangerous time and in the middle of a great war, accidents must happen. I do not think it would be possible to exaggerate the sadness of those things which do occur. Yet at the same time some of us, who have great responsibilities and who realise the dangers inherent to the kind of warfare and the dangers inherent to the conditions of the Flying Corps, have sent our own sons into the Flying Corps, and do not believe they are going to be murdered. My own eldest son is a member of the Flying Corps. So is the son of the Commander of the Flying Corps, Sir David Henderson. [Which merely proves the lack of knowledge of Mr. Tennant and Sir David Henderson.] As the hon. Member has made these statements . . . I will make it my business to have these statements investigated by a purely unofficial body—by a judicial body if possible. When my right hon. Friend the Prime Minister comes back I will ask him whether he will not set up a small judicial body to go through the allegations and lists put before the House by the hon. Member for East Herts, and to furnish a report to the House, so that we may see exactly what has happened.

It is not difficult for any hon. Member in this House to bring up, in a great war like this, lists of casualties and to state facts in relation to individual cases and draw upon the feeling of the House to commiserate with those who have lost their nearest and dearest.

[It would have been impossible if the advice of the right people had been followed, for the accidents would not have occurred.]

But what is on the other side? How many thousands of miles have been flown? How many hundreds and thousands of times have these men gone up and yet nothing has been said about it? They have come back home safe and sound, and we all know. Anyone who has a friend or relation in the Flying Corps has only to ask him how many times he has crossed the German lines. Many of them have done it hundreds and hundreds of times.

[On the other hand, compile a casualty list on the basis of the pilots who really fly, without counting those with "ground" jobs, and it makes very ugly reading.]

The hon. Member made a very effective point in his speech by informing the House that our pilots are ordered out at night, that they are driven up into the air at night, when they can only be driven to their death. I want to assure the House that in no case is an officer ordered to ascend at night to intercept a Zeppelin.

[When an officer is detailed for anti-airship work, and receives official information that airships are near, does that differ much from an order?]

Full information is given to those officers who are detailed for defence duties, and full discretion is also given to them as to whether the conditions are suitable or not. Sometimes it is difficult to restrain officers. Sometimes they put a liberal interpretation on the term "favourable conditions," but it is believed that

instructions are now thoroughly understood and will be interpreted in the proper spirit. [In which case all officers will stop on the ground till the authorities provide reliable engines, efficient machines, and properly arranged landing-grounds at reasonable distances apart.] It has never been intended that officers in a training station should endeavour to attack airships at a great height by night, because the machines in which they are being trained are not fitted to undertake such flights; therefore it has never been considered proper that they should undertake any such task. I wish to make this quite clear, because I understand that there are certain places in England where there have been training squadrons and where the officers and men have been hooted in the streets for not having attacked the Zeppelins, whereas to attack them with the training aeroplanes which they are using would be useless, absurd, and a waste of human life.

The hon. Member went on to speak about death dives. I could give him a description of a death dive. An officer who is known to me made a descent upon a German Fokker shed from a great height, travelling at such a great height that he was able to switch down his engine for the last eight miles. He got rather too low above the shed, so that when he dropped his bombs the explosion was so great that he did considerable damage to his own aeroplane. I shall enlist the sympathy and excitement of the House when I tell them that when he tried to switch his engine on it would not go, and he thought he was right down in the German lines. Then just at the last moment it went. But there was a moment when he thought he was done for. That was not due to a defective engine, but to the great cold. He was naturally at a great height to be able to cover eight miles without any engine going, and the cold was so intense that the engine would not pick up, but it eventually did.

[An absolute case of begging the question. Most engine failures are not of that kind. In the R.A.F. engines they have been due mostly to burst cylinders. Why were over a thousand spare R.A.F. cylinders sent to the R.F.C. in France?]

My hon. Friend (Sir A. Gelder) said that apparently we had given up all hope of being able to deal with Zeppelin raids. We have not. On the contrary, our hope is stronger to-day of being able to deal with them than it has ever been before. I make no boast, I make no promise; I only tell the House that we are endeavouring to do all we can. Of course, the question of material is still a difficult one, and I do not wish to pretend that all is as we could wish it. [A fairly feeble attempt after 17 months of war.]

He asked me to give an assurance in relation to men being sent up in flying-machines which are not fit. I am very glad to give him the assurance at once, which I am sure he anticipates, that no pilots are sent up in aeroplanes which are, in the opinion of their flight or squadron commanders, dangerous, or likely to be dangerous, or unfit for the duties they are told to accomplish.

[The reply to that is that many flight and squadron commanders have not the faintest idea when a machine is dangerous. Many of them are mere "zc." pilots and know nothing about aeroplanes.]

My hon. Friend (Sir W. Pearce) also asked me whether we were utilising to the best of our power, or to the best of the country's provision, all the highest scientific intelligence which the country produces. We have an Advisory Committee which includes Lord Rayleigh, Dr. Glazebrook, Mr. Mallock, and Mr. Horace Darwin. We also have at the disposal of the War Office the National Physical Laboratory, which works upon aeronautical problems. [Mere names. The usual "testimonial" business. There is not a practical aircraft engineer among the lot, and none of the "Advisory Committee" has any practical experience of aviation.]

The hon. and gallant Gentleman (Captain Bennett-Goldney) was anxious to show that I was wrong in a statement that I made before. There is only one military aeroplane station at Dover, and the mess is some 200 yards from the sheds. The officers of the Royal Flying Corps lunch at this mess and not in any hotel. The military air station at Dover is a training station and not a defence station. [Which is a disgraceful fact.]

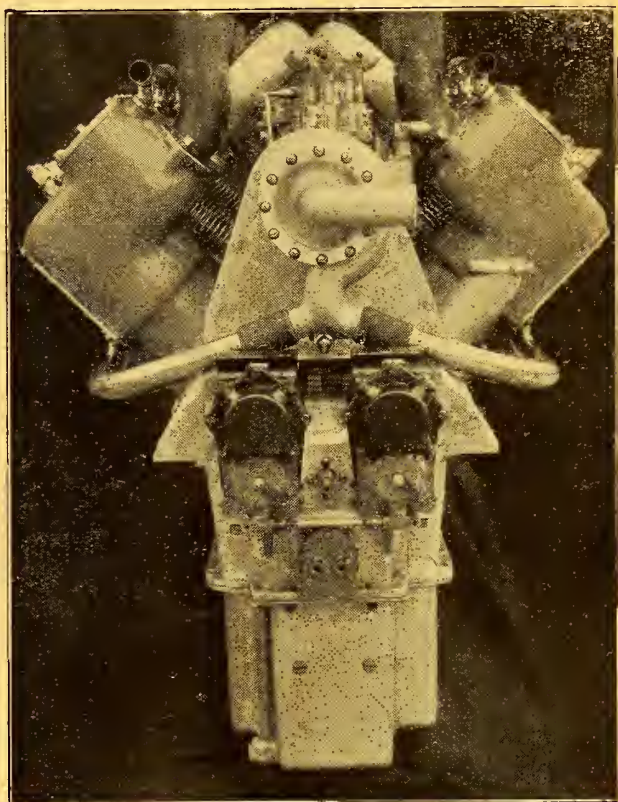
I only wish further to correct a false impression which I know I gave the other day, when I was speaking about the members of the hierarchy in the Air Service having had air experience, and I gave as an illustration the case of Sir David Henderson and said he had had hundreds of hours' experience in the air. I am now informed that that is an exaggeration of the amount of time, though he has, of course, had experience in the air. [So that's that.]

Lord Montagu said in the House of Lords on March 9th that we had only one engine for every three aeroplanes. I do not know whether he refers to that date or to the present date, or to aeroplanes and engines in use, or in reserve, or those which we have ordered, or those which were used in the war, or in training; but I am informed that in any of these cases there is no sort of truth in that statement. Indeed, I believe there are rather more engines than aeroplanes. [On order? Or counting obsolete engines in stock?]

I hope hon. Members will be convinced that this matter is engaging the very earnest attention of a large number of really not stupid people. [Stupid is hardly the word; a much uglier word is



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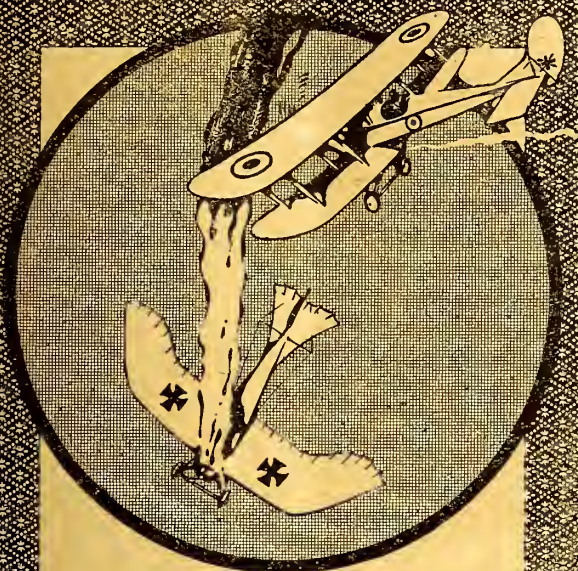
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needed to describe those who are fundamentally responsible for the state of the Flying Services], and that it is being attacked as powerfully as it can be in every possible way, and with all the energy at our command.

[Mr. Tennant reminds one of nothing so much as the classic sparrow who was washed out of his spout by a thunder-storm. One can only hope that Mr. Pemberton-Billing or some other Member may fulfil the office of the hawk in the legend.]

Sir H. Dalziel: The House will welcome the assurance he has given that there is to be an inquiry into the serious allegations of my hon. Friend (Mr. Pemberton-Billing). Nothing else would have been satisfactory. Undoubtedly the hon. Member made allegations which must be replied to by the Government, and pending the inquiry, and understanding that the Committee will be of a judicial character, and that the terms of the inquiry will be satisfactory to the hon. Member, I think, so far as the allegations are concerned, they might be postponed till the result of that inquiry, but it is only fair that I should say that, having friends in the Flying Corps who have spent many months at the front, I can say of my own knowledge that there does exist grave anxiety in the minds of some of our very best pilots. I think that if the inquiry was extended to the opinions of our responsible pilots, very interesting evidence could be given.

[That is the whole point. Get the opinions of the active Service pilots with experience to back their opinions.]

FURTHER QUESTIONS.

On March 29th **Mr. Pemberton-Billing** asked the First Lord of the Admiralty whether he can inform the House of the circumstances connected with an application from the War Office for the services of Royal Naval Air Service pilots for Royal Flying Corps machines; and can he state the objections put forward by Royal Naval Air Service pilots against volunteering for the work?

Dr. Macnamara: My right hon. Friend has no statement to make.

Mr. Fell asked the Secretary to the Admiralty how many motor-cars are at the disposal of the Anti-Aircraft Service at the present time, and if the same are being put to the best possible use?

Dr. Macnamara: If my hon. Friend means passenger cars, the answer is five. We have also a larger number of motor vehicles performing Service work. All are being put to the best possible use.

A PRECEDENT FOR AN AIR SERVICE.

The following extraordinarily well reasoned article by Lord Sydenham appeared in the "Times" last week. As it is improbable that most readers of THE AEROPLANE read the "Times" regularly the article is reproduced with due acknowledgment. It shows Lord Sydenham's clear and analytical mind, and may serve to show why this paper has from the first regarded him as eminently suited to be first Air Minister, if and when an Air Ministry is created:—

In considering the urgently important question of the administration of the air service there is a precedent which seems worth recalling. The old Board of Ordnance had a long and an honourable war record. It was wholly responsible for the supply of all matériel of war to the Navy and Army, and its head was usually a distinguished soldier. The Duke of Wellington was appointed Master-General in 1819, and Lord Raglan vacated the post in 1854 to become Commander-in-Chief of the Forces in the Crimea. The Board was further responsible for the administration and training of the artillery and engineers, and Kinglake emphasised its constitutional character in this respect. "Out of all the three arms," he wrote, "it was over the artillery only that the lulled Constitution of England kept even one sentry at watch. The other two arms were under the personal Sovereign and not ruled by what men called the 'Government.'"

The Crimean War revealed an appalling chaos of disconnected Departments, which inevitably failed to supply the needs of the Army at a critical time; but, in the series of inquiries which followed, the Board of Ordnance seems to have escaped censure. After 1855 the Board was abolished and its functions were merged in the reconstructed War Office. Administrative confusion steadily grew and was at length disclosed in the scathing report of Sir James Stephen's Commission. The subsequent handling of the Ordnance question provides an interesting study in administrative ineptitude, which accounts for the fact that when war broke out, in August, 1914, we possessed no properly constituted Ordnance Department, several efforts in this direction having failed.

Meanwhile the Admiralty which in long years of war had dealt contentedly with the old Board objected to receive its matériel through the War Office, and established an independent Ordnance Department, which led later to a complete separation of stores throughout the Empire.

The destruction of the Board was, I believe, due to difficulties and jealousies arising in relation to the personnel of the artillery and engineers, which arms, it was claimed, must be brought under uniform Army control. So far, therefore, the precedent tells against the establishment of a Board to provide and maintain the air service as a whole; but there are important points of difference between the two cases.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether he is aware that friction has already arisen between the naval and military members of the Joint War Air Committee; and, if so, whether he will do his best to ensure that this friction does not prevent a full and frank disclosure of the position of each Service?

Mr. Tennant: I am informed that no conditions have arisen which will prevent a full and frank disclosure of the position of each Service.

Mr. Pemberton-Billing: Would the right hon. Gentleman answer my question whether any friction has arisen?

Mr. Tennant: I understand no conditions involving friction which would "prevent a full and frank disclosure" have arisen.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether he is aware that Mr. Duncan, a pupil at a civilian flying school, who has already spent £160 in qualifying for his pilot's certificate, has been called up under the Military Service Act, 1916, in spite of assurances that he would be given sufficient time to obtain his certificate; is he aware that this is not an isolated case; and will he make a public statement re-assuring all those men who are qualifying at their own expense for this branch of the combatant services that the labour and money expended and the risks they are taking will not be lost to the country?

Mr. Tennant: The War Office have no information in regard to this case, but inquiry shall be made. It seems clear that Mr. Duncan had not attested, and, therefore, came under the Military Service Act, and, as he was neither exempted nor excepted, the authorities were bound to send him a notice calling him up. As the hon. Member states that this is not an isolated case, I will ask him of his abundance to give particulars of any other cases and to state in each case whether the pupil was attested, and, if so, whether he had begun qualifying for his certificate before or after his group was called up.

Mr. Pemberton-Billing: Would the right hon. Gentleman mind telling me whether it is the intention to call up men who are almost qualified as pilots and send them into the trenches, when pilots are scarce, as was suggested in the House yesterday?

Mr. Tennant: No, Sir, there is no such suggestion. The question the hon. Gentleman asked was whether the man was attested or not.

We require an air wing attached to the Navy to meet the requirements of fleets and squadrons, and another wing attached to the Army to carry out certain duties necessary for operations in the field. These wings have hitherto been provided and maintained by the Admiralty and War Office respectively, with the result of confusion, waste, and ill-ordered progress in certain respects. The principal uses of the air service cannot be secured by such means. It must be able to act as a separate arm, handled independently of the Navy and the Army by its own commanders under the direct orders of Government. It must create its own school of scientific thought, developing systems of strategy and tactics which may differ as much from naval and military systems as these do from each other. The consummate admiral cannot also be a consummate general, and it will be quite impossible for either to master all the problems of the air.

It follows that the air service can attain to full efficiency only if it is the sole care of a responsible Department of State. The advantages of entrusting construction, experiment and matériel generally to one body are obvious, and a halting step has already been taken in this direction, which is certain to prove disappointing because the new Joint Committee has no real powers. As regards personnel, the case of the artillery and engineers is not analogous. Their recruitment, organisation, and a great part of their training closely follow those of the other arms. With the air service the difference is organic. Airmen must specialise and concentrate upon their peculiar duties from the first. When their technical training is complete, units can be handed over to the admiral or to the general to learn their business as necessary adjuncts of a fleet or an army, and will then pass under naval or military command just as trawlers and auxiliary craft, whose crews may have had no naval training, take their place in a service involving much that is new to them.

I therefore unhesitatingly come to the conclusion that an Air Board, organised on the lines of the old Board of Ordnance, is imperatively required; but, at the same time, I strongly deprecate undue haste. The Munitions Department is a warning against the sudden construction of a huge machine without adequate previous consideration or a carefully planned structure conforming to sound principles of administration.

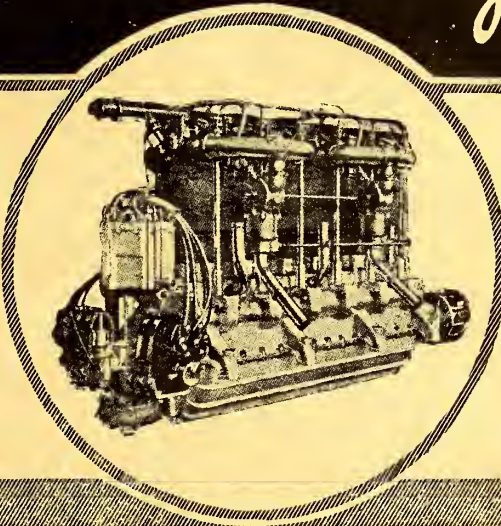
This work should be put in hand without delay. Meanwhile, following the addition to the Army Council, either a new Lord should be added temporarily to the Board of Admiralty or one of the present Lords should receive full powers to deal with air questions, which are now the business of far too many officials, and have therefore been sadly mismanaged.

[If Lord Sydenham will admit that when units are handed over to the Fleet or the Army they then become an integral and permanent part of the Navy or Army, as the case may be, then one can agree with him absolutely.—Ed.]

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Naval and Military Aeronautics.

From the "London Gazette," March 28th, 1916.

His Majesty the King has been graciously pleased to confer the undermentioned rewards for gallantry and distinguished service in the field, in connection with the engagement at Sollum, Egypt—March 14th to 17th, 1916:—

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* * *

WAR OFFICE, March 28th.

REGULAR FORCES.—MEMORANDUM.—H. E. A. Lindsay, late Lieut., Gordon Highlrs., to be temp. Capt. for duty with R.F.C. March 18th.

Flight-Sergt. S. E. Devonald, from R.F.C., to be temp. Sec. Lieut. for duty with the Mil. Wing. March 11th.

Pte. W. G. Barlow, from Lond. R., T.F., to be temp. Sec. Lieut. for duty with R.F.C. March 15th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieut. (on prob.) T. C. Webb-Bowen relinquishes his commn. March 20th. To be Sec. Lieuts. (on prob.): H. D'O. Benningfield, J. Bell, S. W. Carline, F. S. Andrews, R. G. Heyn, W. L. Grech, H. C. Eltringham, C. J. D. Symons, C. J. Q. Brand, R. T. Colley, F. J. Miller, H. Hamer, D. D. Fowler, B. H. M. Jones, E. C. Callaghan. March 15th. A. B. Fanstone. March 18th. J. W. Francis. March 19th.

TERRITORIAL FORCE.—ROYAL FIELD ARTILLERY.—LONDON (HOWITZER) BRIG.—Sec. Lieut. (temp. Lieut.) A. H. T. L. Speer is secd. for duty with R.F.C. March 14th.

* * *

From the "London Gazette" Supplement, March 29th, 1916.

WAR OFFICE, March 29th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Sqn. Commr.—Temp. Capt. F. H. Cleaver, Gen. List, from a Flight Commr., and to be temp. Maj. whilst so employed. March 16th.

Flying Officers.—Sec. Lieut. C. L. H. Hicks, S.R. March 12th. Temp. Capt. H. L. Edgar, Ches. R., T.F.; Temp. Lieut. T. A. Tillard, Norfolk-Yeo., T.F.; Temp. Lieut. A. H. T. L. Speer, R.F.A., T.F.; Sec. Lieut. E. D. Le Sauvage, Dorset R., and to be secd.; Sec. Lieut. R. C. Gallop, Cameronians, and to be secd.; Temp. Sec. Lieut. H. L. Chadwick, R. War. R., and to be transferred to Gen. List; Temp. Sec. Lieut. F. H. Coleman, Middx. R., and to be transferred to Gen. List.

Sec. Lieuts., S.R.: W. C. Gage, C. E. Rogers, A. K. Tylee, J. S. Shaw, V. C. Gordon, R. H. Lane, E. S. Duggan, Temp. Sec. Lieut. S. T. Welch, Gen. List, from Flying Officer (Observer). March 14th. Temp. Sec. Lieut. A. L. Gordon-Kidd, Gen. List; Temp. Sec. Lieut. G. H. Nicholson, R. W. Surrey R., and to be transferred to Gen. List. March 15th.

MEMORANDUM.—To be temp. Sec. Lieuts. for duty with the R.F.C.: Sergt. C. J. Truran, from H.A.C.; L.-Corpl. J. Thompson, from H.A.C.; Privates R. H. Stocken, from Rough Riders, T.F.; N. W. Webb, from H.A.C.; S. Nixon, from Princess Patricia's Canadian L.I.; C. A. Samter, from Lond. R.E., T.F.; P. W. Chambers, from 4th Canadian Inf. Bn. March 15th. Sergts. H. C. Todd, from H.A.C.; O. E. Simmonds, from Taunton School, O.T.C.; Privates E. J. Garland, from Inns of Court O.T.C.; J. A. Ruck and F. L. Osman, from Univ. of Lond. O.T.C.; H. F. MacKain, from Lond. R., T.F.; J. H. Gale, from Oxford Univ. O.T.C.; P. R. Pinsent, from Winchester Coll. O.T.C.; R. W. Gunner, from Inns of Court O.T.C.; H. B. Wakefield, from Inns of Court O.T.C. March 18th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—The following Sec. Lieuts. (on prob.) relinquish their commns: K. E. Page. March 16th. E. T. Williams. March 20th. The following Sec. Lieuts. (on prob.) are confirmed in their rank: J. H. Firstbrook, A. K. Tylee, V. C. Gordon, C. E. Rogers, S. R. Proctor to be Sec. Lieut. (on prob.). February 28th.

TERRITORIAL FORCE.—Sec. Lieut. (temp. Lieut.) T. A. Tillard is secd. for duty with R.F.C. March 14th.

* * *

From the "London Gazette" Supplement, March 30th, 1916.

WAR OFFICE, March 30th.

REGULAR FORCES.—The following Warrant Officers and man to be Sec. Lieuts. for service in the Field:—

INFANTRY.—W. RIDING R.—Act. Sergt.-Maj. A. Hunter, from R.F.C. March 5th.

OXFORD AND BUCKS L.I.—Sergt.-Maj. E. McEvoy, from R.F.C. February 27th.

R. IRISH R.—First Class Air Mechanic W. Wood, R.F.C. March 12th.

MEMORANDA.—The following to be temp. Sec. Lieuts. for duty with R.F.C.: Corpl. H. F. Alton, from R.E. February 27th. Flight-Sergt. T. C. Noble, from R.F.C. March 5th. Sergt. T. P. H. Bayetto, from R.F.C., Pte. H. M. Parsons, from H.A.C. March 12th.

ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Flight Commrs.—Lieut. J. W. Woodhouse, S.R., from a Flying Officer, and to be temp. Capt. while so employed. March 15th. Temp. Capt. V. A. Beaufort, Devon R., from a Balloon Officer. March 16th.

Wing Adjt.—Capt. H. M. Meyler, Bord. R., and to be secd., vice Capt. V. H. Secker, 14th Huss. March 4th.

Flying Officer (Observer).—Capt. A. A. Walser, Lond. R., T.F. October 21st.

INFANTRY.—RIFLE BRIG.—Lieut. to be Capt.: C. C. McGrigor (dated September 27th, and to be secd. from October 2nd for service with R.F.C.).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—To be Sec. Lieuts. (on prob.): T. W. Tattersall, A. Ward. March 6th. R. F. Talbot, E. J. Smyth, C. E. S. Russell, J. R. G. Whitehead, D. J. Taylor, G. C. Bailey, A. E. Glew, C. N. Russell, F. E. Sargood, H. Hulbert, A. G. Stewart, O. G. Thomas, M. W. Wilson, A. H. Vinson, C. M. Crow, C. J. R. Milton, R. E. Dangerfield, L. G. Fraser, L. V. Hirst. March 18th.

TERRITORIAL FORCE.—INFANTRY.—CHESHIRE R.: Capt. H. J. Edgar is secd. for duty with R.F.C. March 14th.

* * *

WAR OFFICE, March 30th.

His Majesty the King has been graciously pleased to approve of the appointment of the undermentioned officer to be Companion of the Distinguished Service Order, in recognition of his gallantry and devotion to duty in the field:—

Sec. Lieut. (temp. Lieut.) MALCOLM HENDERSON, 4th Ross Highland Seaforth Highlrs., T.F., and R.F.C.

For conspicuous gallantry when, on photographic reconnaissance, his machine was struck by a shell from an enemy anti-aircraft gun. The shell passed through the nacelle of the machine and took off his leg just below the knee. In spite of this he succeeded in coming down from 7,000 ft., and landing 3,000 yards behind our line, thus saving his aeroplane and the life of the observer.

* * *

The King has been graciously pleased to confer the Military Cross on the following officers, in recognition of their gallantry and devotion to duty in the field:—

Capt. JOHN EDWARD TENNANT, Scots Guards and R.F.C.

For conspicuous gallantry and skill. During the night he bombed the sheds of an enemy aerodrome, descending to 30 ft. to do so. He shut off his engine in order to avoid giving warning, although there was risk of not being able to start it again. His machine was much damaged by the explosion of his own bombs at so low a height. On his return he requested permission to take another machine and repeat the operation.

[It is well to note that the two officers mentioned above are not the sons of General Henderson and of Mr. Tennant, to whom reference was made in the House of Commons. Young Mr. Henderson has not yet distinguished himself, and young Mr. Tennant is only just learning to fly. One hopes that the necessary reforms in the R.F.C. will be carried out before they are called upon to endanger their valuable lives as their namesakes have done, and that their fathers' touching confidence in the safety of R.F.C. pilots may thus be justified.—Ed.]

Lieut. (temp. Capt.) ERNEST LESLIE GOSSAGE, R.F.A. and R.F.C.

For consistent good and zealous work under bad weather conditions, both on patrol and when co-operating with the artillery in operations resulting in the capture of the enemy's position.

Lieut. (temp. Maj.) REGINALD PERCY MILLS, R. Fusiliers and R.F.C.

For conspicuous ability when co-operating with the Artillery in operations resulting in the capture of the enemy's position.

Sec. Lieut. CHARLES DAVID DANBY, R.E. (T.F.) and R.F.C.

For excellent work, under bad weather conditions, when taking photographs both before and during operations.

Temp. Sec. Lieut. THOMAS SYDNEY HOWE, 6th Connaught Rangers and R.F.C.

For conspicuous gallantry and skill when on patrol. Sec. Lieut. Howe and Sec. Lieut. Leggatt attacked a hostile machine and drove it down. They then climbed again and attacked another. Under heavy fire from this machine, by a combination of good flying and shooting, they hit the enemy pilot and damaged his engine, forcing him to descend within our lines. The enemy were made prisoners.

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Sec. Lieut. FRANK NEVILLE HUDSON, Buffs (E. Kent R.) and R.F.C.

For conspicuous gallantry and skill on several occasions, notably when, although severely wounded in the head, he successfully completed his aerial reconnaissance. After recrossing the line and landing at an aerodrome he at once lost consciousness. This young officer is only 18 years of age, but has many times driven off enemy machines and twice forced them to the ground.

Sec. Lieut. EDWARD WILMER LEGGATT, Wilts R. and R.F.C.

For conspicuous gallantry and skill when on patrol. Sec. Lieuts. Leggatt and Howe attacked a hostile machine and drove it down. They then climbed again and attacked another. Under heavy fire from this machine, by a combination of good flying and shooting, they hit the enemy pilot and damaged his engine, forcing him to descend within our lines. The enemy were made prisoners.

Sec. Lieut. HENRY IRVING FREDERICK YATES, No. 14 Squadron, 5th Wing, R.F.C. (S.R.).

For conspicuous gallantry and skill. He was instructed to destroy an enemy waterworks, but, on arrival, found the place defended by anti-aircraft guns and infantry lying on their backs, who opened a heavy fire. Notwithstanding this he pluckily descended to 600 ft., and dropped a bomb into the centre of the waterworks. He thus succeeded in destroying them, and then attacked a machine-gun detachment and drove it from its position by fire from his own machine-gun. On a previous occasion his name was brought to notice for gallant and skilful work on a reconnaissance.

* * *

His Majesty the King has been graciously pleased to approve of the award of the Distinguished Conduct Medal to the under-mentioned Warrant Officers, Non-commissioned Officers, and Men for acts of gallantry and devotion to duty in the field:—

Sec. Class Air Mechanic A. DALZIEL, 2550, R.F.C.

For conspicuous gallantry on all occasions. When his dug-out was blown in he moved his wireless station to a fresh position in the open. Another time, when his "aerial" was cut by a shell, he repaired it under fire.

Corpl. (Act. Sergt.) W. W. GREGG, 4534, R.F.C.

When an aeroplane, which had caught fire with its bombs, was on the ground blazing, Act. Sergt. Gregg and Act. Corpl. Lowe, regardless of danger, rushed out and cut out the officer pilot, who was unconscious. Immediately afterwards the bombs exploded.

First Class Air Mechanic (Act. Corpl.) H. P. LOWE, 10464, R.F.C.

When an aeroplane, which had caught fire with its bombs, was on the ground blazing, Act. Sergt. Gregg and Act. Corpl. Lowe, regardless of danger, rushed up and cut out the officer pilot, who was unconscious. Immediately afterwards the bombs exploded.

* * *

From the "London Gazette" Supplement, April 1st, 1916.

WAR OFFICE, April 1st.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Flight Commr.—Capt. J. U. Kelly, Wilts R., from a Flying Officer. March 18th.

Equipmt. Officer.—Temp. Capt. C. E. Gardner, Glouc. R., from an Asst. Equipmt. Officer. March 17th.

Flying Officer.—Capt. T. R. Dowdeswell, Welsh R., T.F. March 18th.

Asst. Equipmt. Officer.—Sec. Lieut. H. Wing, S.R. March 21st.

INFANTRY.—MANCHESTER R.—Lieut. to be Capt.; Vaudrey A. Albrecht, and to be sec'd. from January 6th, 1916, for service with R.F.C.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieuts (on prob.) confirmed in their rank: John MacD. Patten, Henry Wing, John S. Shaw.

To be Sec. Lieuts. (on prob.): Hector Thompson. February 20th, 1916. George A. Curtis. March 6th, 1916. Gerald Smith. March 18th, 1916.

TERRITORIAL FORCE.—INFANTRY.—NOTTS AND DERBY R.—Sec. Lieut. G. B. Robotham is sec'd. for duty with R.F.C. March 1st.

TERRITORIAL FORCE RESERVE.—YEOMANRY.—SURREY.—Capt. J. Everidge is sec'd. for duty with R.F.C. October 29th.

INFANTRY.—BORD. R.—Lieut. G. J. Monson-Fitzjohn is sec'd. for duty with R.F.C. March 11th.

* * *

From the "London Gazette" Supplement, April 3rd, 1916.

WAR OFFICE, April 3rd.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—MIL. WING.—Sqdn. Commr.—Capt. F. C. Jenkins, S.R., from a Flight Commr., and to be temp. Maj. whilst so employed. February 20th.

Flying Officers.—Lt. P. A. O. Leask, R. Ir. Rif., and to be seconded; March 8th. Temp. Lt. D. Wilson, E. Yorks. R., and

to be transferred to General List; Lt. C. H. Nicholas, S. Wales Bord., S.R., and to be seconded; Sec. Lt. D. H. Dabbs, Berks (Hungerford) Yeo., T.F.; March 9th. Temp. Sec. Lt. C. A. Mercer, R.W. Surrey R., and to be transferred to Gen. List; March 16th.

MACHINE GUN CORPS.—Lts. (R.N.V.R.) from R.N. Air Service, to be temp. Maj. :—A. G. Stern (March 6th); D. G. Wilson (March 7th). Following officers (R.N.V.R.), from R.N. Air Service, to be temp. Capt. :—Lt. K. P. Symes (March 8th); Lt.-Commr. A. D. Borton (Lt., Res. of Off., K.R.R.C.) (March 27th).

TERRITORIAL FORCE.—YEOMANRY.—BERKS.—Sec. Lt (temp. Lt.) A. C. Bishop is sec'd. for duty with R.F.C. (March 23rd).

INFANTRY.—WELSH.—Capt. T. R. Dowdeswell sec'd. for duty with R.F.C.

NAVAL.

The following appointments were notified at the Admiralty on March 29th:—

ROYAL NAVAL AIR SERVICE.—Late Capt. (Canadian Inf.).—J. K. Cronyn, entered as Proby. Flight Sub-Lieut. (temp.) with seny. of March 1st, and appointed to "President," for R.N.A.S.

The following have been entered as Proby. Flight Sub-Lieuts. (temp.), with seny. of April 3rd, and appointed to "President II," additional, for R.N.A.S.:—S. J. Fetherston, L. N. Glaisby, E. Greenwood, W. O. Dickinson, C. P. O. Bartlett, W. E. C. B. C. Forsyth, H. T. Mellings, R. M. Hughes, S. L. Wallers, C. Huddy, and R. J. Paul.

Mr. C. de Hoghton, entered as Sub-Lieut. (R.N.V.R.) (temp.), with seny. of March 28th, and appointed to "President," additional, for R.N.A.S. March 30th.

* * *

The following appointments were notified at the Admiralty on April 1st:—

ROYAL NAVAL AIR SERVICE.—The following Flight Sub-Lieuts. have been promoted to Flight Lieuts., with seny. of April 1st:—R. C. Petter, H. R. Hopperton, C. Tollemache, W. H. Dunne, G. Donald, F. J. E. Feeny, R. M. Everett, J. F. Hay, R. B. Munday, G. H. Jackson, R. T. H. Duff, J. Forgan Potts, G. G. Dawson, J. P. Coleman, W. H. E. Campbell, J. S. Wheelwright, R. F. S. Leslie, F. H. M. Maynard, H. G. Henley, and F. J. Linnell.

The following Flight Sub-Lieuts. (temp.) have been promoted to Flight Lieuts. (temp.), with seny. of April 1st: R. A. Reid, B. P. H. de Roeper, B. C. Bell, G. R. H. Talbot, and P. C. D. Douglass.

Mr. R. W. Anderson, entered as Proby. Flight Sub-Lieut. (temp.), with seny. of March 31st, and appointed to "President," additional, for R.N.A.S.

Mr. R. E. Goddard, granted a temp. commission as Lieut. (R.N.V.R.), with seny. of March 31st, and appointed to "President," additional, for R.N.A.S.

* * *

The following appointments were notified on April 3rd:—

ROYAL NAVAL AIR SERVICE.—Temp. Sub-Lieut. (R.N.V.R.).—W. H. Mulville, promoted to Lieut. (temp.), with seny. of March 31st.

Mr. T. V. Oddie, entered as Proby. Flight Sub-Lieut. (temp.), with seny. of April 1st, and appointed to "President II," additional, for R.N.A.S.

Mr. T. F. Legard, granted a temp. commission as Assist. Paymr. (R.N.V.R.), with seny. of March 28th.

* * *

In consideration of the risks involved officers and men, whether belonging to the Royal Naval Air Service or not, who are employed on acceptance duties and are required to carry out trials on new and repaired machines, are to receive additional remuneration.

The following allowances per day are sanctioned by an Order in Council published in the "Gazette":—Commissioned officers, 5s.; warrant officers, 3s.; men, 2s.

* * *

It is reported that during the gale on March 28th Asst. Paymr. Arthur Henry Laird, R.N.A.S., aged 30, of Elmsbank Mansions, Barnes, was killed at Barnes by the fall of a large tree.

* * *

The Secretary of the Admiralty made an announcement on March 28th in continuation of the communiqué issued on Sunday, March 26th, which stated:—

Our destroyers, while dealing with the enemy patrol vessels, were themselves attacked by enemy aircraft, but received no damage of any kind.

* * *

On April 1st, 10.55 a.m., the Secretary of the Admiralty issued the following statement:—

During the night a damaged Zeppelin was observed to come down off the Thames estuary; on being approached by our patrol vessels she surrendered; the crew were taken off her, and she was taken in tow, but she subsequently broke up and sank.

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KINDLY MENTION “THE AEROPLANE” WHEN CORRESPONDING WITH ADVERTISERS.

MILITARY

G.H.Q. dispatch of March 30th says:—

One of our aeroplanes sent out yesterday is missing.

* * *

G.H.Q. dispatch of April 2nd says:—

Two hostile aeroplanes were driven down behind the German lines. One of our machines sent out yesterday is missing.

* * *

G.H.Q. dispatch of April 3rd says:—

Yesterday one of our aviators shot down a German machine in the neighbourhood of Lens. Another aviator attacked and drove off five hostile machines after close combat with two of them

* * *

At 1.25 a.m. on April 1st the Secretary of the War Office made the following announcement:—

An air raid took place last night over the Eastern Counties, in which five Zeppelins are believed to have taken part.

All the raiders crossed the coast at different places and times and steered different courses.

At present about 90 bombs are reported to have been dropped in various localities in the Eastern Counties, but the results are not known.

It is further reported that hostile aircraft have visited the North-East Coast, but no details have yet been received.

* * *

This was partially amplified by the following:—

WAR OFFICE, April 1st, 4 p.m.

It has now been ascertained that the Zeppelins which carried out the air raid last night were organised in two squadrons and one detached ship.

The two squadrons made the Eastern Counties their objective, while the detached ship raided the North-East Coast.

As far as is known at present, 54 explosive and incendiary bombs were dropped in the Eastern Counties and 22 on the North-East Coast.

The Zeppelin reported by the Admiralty to have fallen into the sea was the L.15. She was hit by gun-fire while over the Eastern Counties, the shell striking the upper part of the ship near the tail. After being hit she quickly dropped to a lower altitude, well down by the tail, and finally came down into the sea off the coast of Kent. A machine-gun, some ammunition, a petrol tank riddled with shrapnel, and some machinery were dropped either by this vessel or by another of the raiders.

Owing to the damage to telephone and telegraph wires caused by the recent storms it has not yet been possible to ascertain fully the casualties or the damage caused. The casualties at present reported amount to 28 killed and 44 injured.

* * *

The following statements appeared on April 2nd:—

WAR OFFICE, April 2nd, 6.30 p.m.

Two airships approached the North-East Coast last night. Only one crossed the coast, the other having turned back.

As far as is at present known 16 persons were killed and about 100 injured.

Eight dwelling-houses were demolished, and a serious fire was caused in a french polishing shop.

* * *

WAR OFFICE, April 2nd, 7.40.

The total casualties reported as a result of the Zeppelin raid on the night of March 31st-April 1st now amount to:—

Killed, 43; injured, 66.

Nearly 200 explosive and incendiary bombs were dropped.

A Baptist chapel, three dwelling-houses, and two cottages were demolished, and a town hall, four dwelling-houses, 35 cottages, and a tramcar shed partially wrecked, but no military damage was caused.

A number of our aeroplanes went up to attack the raiders.

Lieut. Brandon, R.F.C., on rising to 6,000 ft., at 9.45 p.m. saw a Zeppelin about 3,000 ft. above him. At 9,000 ft. he got over it and attacked, dropping several bombs, three of which he believes took effect. At 10 p.m. he got over the airship again and let off two more bombs over her nose. His own machine was hit many times by machine-gun bullets.

This may have been the Zeppelin which dropped the machine-gun, ammunition, petrol tank, and machinery, or possibly that which came down off the Thames estuary.

* * *

The third consecutive raid was announced thus:—

WAR OFFICE, April 3rd, 1.15 a.m.

A Zeppelin raid took place last night, when the coast of Scotland and the northern and south-eastern counties of England were attacked. Bombs were dropped at various places, but no details are at present available.

A further communication will be issued later.

* * *

The following official communication was issued on April 3rd:

WAR OFFICE, April 3rd, 4.55 p.m.

It appears that altogether six Zeppelins took part in the raid of last night.

Three of them raided the South-Eastern Counties of Scotland,

one the North-East Coast of England, and the remaining two the Eastern Counties of England.

The vessels which raided Scotland crossed the coast at 9 p.m., 9.45 p.m., and 10.15 p.m. respectively and cruised over the South-Eastern Counties of Scotland until about 1.10 a.m.

Their course gave no indication of any special locality of attack, but in all 36 explosive and 17 incendiary bombs were dropped at various places, damaging some hotels and dwelling-houses.

The following are the casualties which have been reported up to the present in Scotland:—

	Men.	Women.	Children.	Total.
Killed	7	—	3	10
Injured	5	2	4	11

One vessel visited the North-East Coast and dropped 22 explosive and 15 incendiary bombs.

The two remaining ships crossed the English Coast at about 10.15 p.m. and cruised over the Eastern Counties until about 1 a.m. They were both engaged at various times by anti-aircraft artillery, and appear to have been prevented by this means from selecting any definite locality as their objective. Thirty-three explosive and 65 incendiary bombs were dropped by these two vessels.

As far as can be ascertained no casualties were caused in England.

* * *

The following appeared in the Casualty List published on March 29th:—

PREVIOUSLY OFFICIALLY REPORTED MISSING, NOW UNOFFICIALLY REPORTED PRISONER OF WAR.—Second Class Air Mechanic J. Chilton, 876, R.F.C.

* * *

The following appeared in the Casualty List published on April 1st, all undated:—

PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONER OF WAR. Sec. Lieut. L. A. Newbold, Essex R. and R.F.C.

KILLED.—First Air Mechanic T. F. Parkes, 2182, R.F.C.

PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONER OF WAR. First Class Air Mechanic W. Holden, 2259, R.F.C.

* * *

The following appeared in the Casualty List published on April 3rd, reported under various dates:—

WOUNDED.—Lieut. C. D. Fuller, R.F.C.

MISSING.—Sec. Lieut. O. Lerwill, R.F.C.

PREVIOUSLY OFFICIALLY REPORTED MISSING, NOW UNOFFICIALLY REPORTED WOUNDED AND A PRISONER.—Sec. Lieut. C. W. Palmer, R.F.C.

DIED.—Second Air Mechanic A. E. J. Palmer, 13638, R.F.C.

* * *

The following appeared in the obituary columns on April 4th:—

BAVIN.—On Saturday, April 1st, as the result of a flying accident on Salisbury Plain, Geoffrey Wynne, Sec. Lieut., Royal Flying Corps, and Lincolnshire Regiment, third son of Captain and Grace Bavin, of Berkhamsted School.

On April 3rd the Mid-Wilts Coroner held an inquest at the Central Flying School on the body of Geoffrey Wynne Bavin, Sec. Lieut., Lincolnshire Regiment, who was killed while flying on Upavon Downs, Wilts, on Saturday, April 1st.

Mr. Bavin, who was eighteen years of age, had been at Upavon since December. Lieut. Ainslie saw him, when he was 2,000 feet up, begin to descend. There was no witness of the actual fall. The machine was a new one, only brought from Farnborough the previous day. Its construction was quite satisfactory, and it was easily controlled. The Coroner said that there was no evidence in this case to support the allegations in the Press that machines were not well made. A verdict of accidental death was returned.

* * *

It is of interest to note that young Mr. Brandon, who so skillfully bombed a Zeppelin last week, is a product of a mere civilian aviation school. He learnt to fly at the Hall School at Hendon, where his instructor was that Mr. Stevens who was appointed on probation to the R.F.C. early in the war, and subsequently rejected as incapable, on the judgment of an officer who had not probably flown for as many hours as had Mr. Stevens. Since that fortunate rejection, Mr. Stevens has trained some dozens of pilots for the Flying Services, and many of them have served with notable distinction, so that Mr. Stevens has probably been of greater value to the country than if he had gone to the front as an aviator. It is presumably because the pupils from civilian schools have so frequently distinguished themselves that the Admiralty and War Office refuse to afford such schools any support.

It is possible that the Zeppelin bombed by Mr. Brandon was the one which sank in the Thames. The fact that it did not catch fire shows that the bomb problem has not yet been successfully solved, though if professional chemists were consulted, instead of amateur bomb "experts," the problem seems simple enough.

Finally, it strikes one as peculiar that the name of this officer should be made public by the War Office, while the name of the officer who brought down a German seaplane recently was not disclosed. The two operations were equally meritorious, and the evidence in each case is of about equal reliability.

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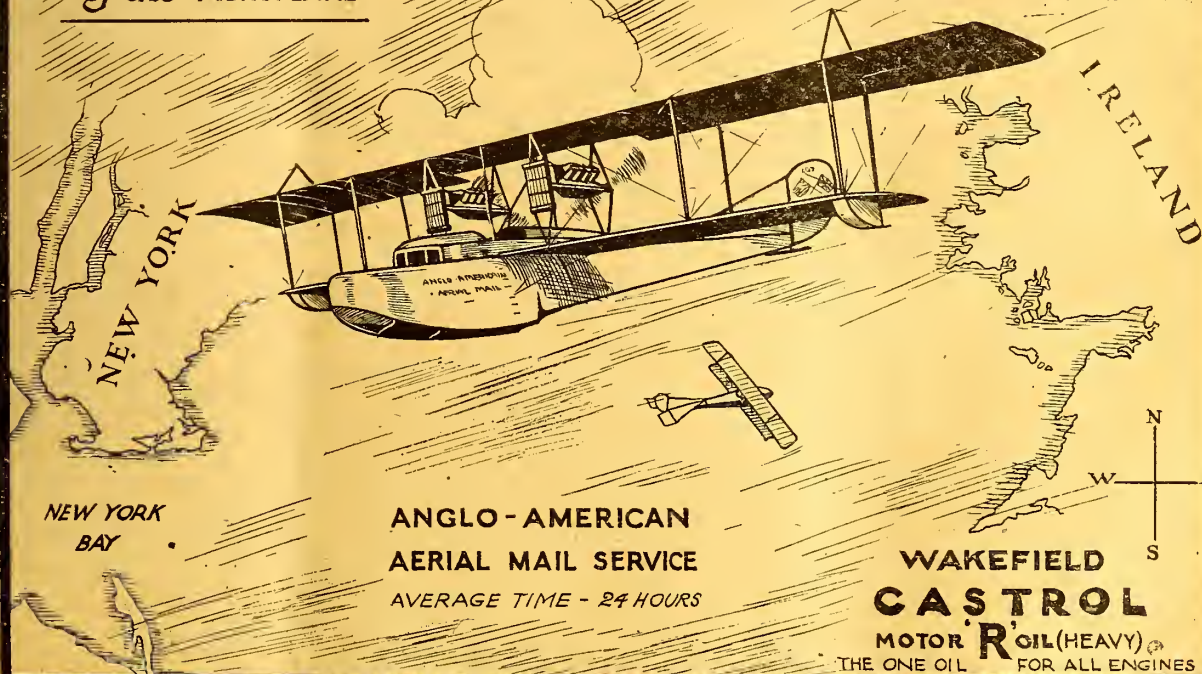
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The engagement is announced of Francis Silvertop, Queen's Own Oxfordshire Hussars, attached Royal Flying Corps, eldest son of the late Henry Thomas Silvertop, of Minster Acres, Northumberland, and Nevill, younger daughter of G. L. Foster Harter, of Salperton Park, Gloucestershire.

On March 28th the King and Queen visited the Metropolitan Hospital to see the sick and wounded soldiers accommodated there. It is reported that His Majesty displayed particular interest in a wounded aviator from France. Finally he asked him, "How are we off for aeroplanes in France?" The reply is alleged to have been, "Very well indeed, your Majesty, we have plenty of machines, and most of them very excellent ones at that."

[The reply seems to indicate esprit de corps in the R.F.C. and the unwillingness of a sportsman to tell "tales out of school," but it might have been better to have told the King the plain unvarnished truth.—Ed.]

THE COURT CIRCULAR.

BUCKINGHAM PALACE, March 29th.

The following officer had the honour of being received by the King on March 29th, when His Majesty conferred on him the Military Cross:—

Capt. ROBERT LORAINE (Royal Flying Corps).

FRANCE.

The communiqué of March 30th says:—

West of Nouvion an enemy aeroplane was brought down by our special guns. The machine fell five yards in front of our trenches. Its passengers were killed. We brought into our lines one of the machine-guns of the aeroplane.

In Champagne our special guns brought down a German aeroplane, which fell in the enemy lines near Ste. Marie-à-Py.

In the course of the day our aviators displayed great activity. In Champagne, in the region of Dontrien, one of our pilots brought down a Fokker, which fell in flames in the enemy lines.

In the region of Verdun five enemy aeroplanes were brought down in the immediate proximity of the lines. Our aeroplanes were struck many times, but all our pilots returned unharmed.

There is no important event to report on the rest of the front. During yesterday one of our aeroplane squadrons dropped 15 bombs of large calibre on the railway station of Metz-Sablon and five on that of Pagny-sur-Moselle.

Last night two of our aeroplanes bombarded the station of Mézières-les-Metz.

* * *

An official communiqué on the operations on the Greek frontier during the month, and published on March 30th, says:—

On the 20th a group of our aeroplanes consisting of 23

machines, dropped numerous bombs on the enemy cantonments of Volovac, west of Lake Doiran.

On the 25th a fight between a Fokker and one of our aeroplanes ended in the same way—a forced landing by the burning of the aeroplane. In revenge an Albatros was brought down by one of our pilots.

On the 28th, Salonika was bombarded by an aerial squadron. Twenty Greek civilians were killed and 25 wounded. Our aeroplanes launched in pursuit of the enemy brought down three of his machines.

* * *

The communiqué of March 31st says:—

A German aircraft was brought down by our special guns. The machine fell in flames in the enemy lines north of Tahure.

One of our pilots, in the course of a lively aerial fight, brought down an Aviatik, which fell in our lines at Soppe (region of Belfort).

* * *

The communiqué of April 3rd says:—

Last night a Zeppelin dropped eight bombs on the town of Dunkirk, causing small material damage. Two civilians were killed and four injured.

As a reprisal for the bombardment of Dunkirk by a Zeppelin last night, thirty-one Allied aircraft dropped 83 bombs of heavy calibre on the enemy cantonments of Keyen, Fessen, Terrest, and Houthulst. On the night of April 2nd-3rd one of our air squadrons bombarded the station of Conflans.

During the day numerous fights in the air took place successfully in the region of Verdun. Our aviators brought down four German machines.

Other enemy aircraft were put to flight or forced to come to earth.

Near Noyon a German aeroplane fell in our lines; the aviators were captured.

GERMANY.

The communiqué of March 28th says:—

A German air squadron flew over Salonika and liberally pelted with bombs the new harbour and the petroleum harbour, as well as the Entente camp north of the town.

* * *

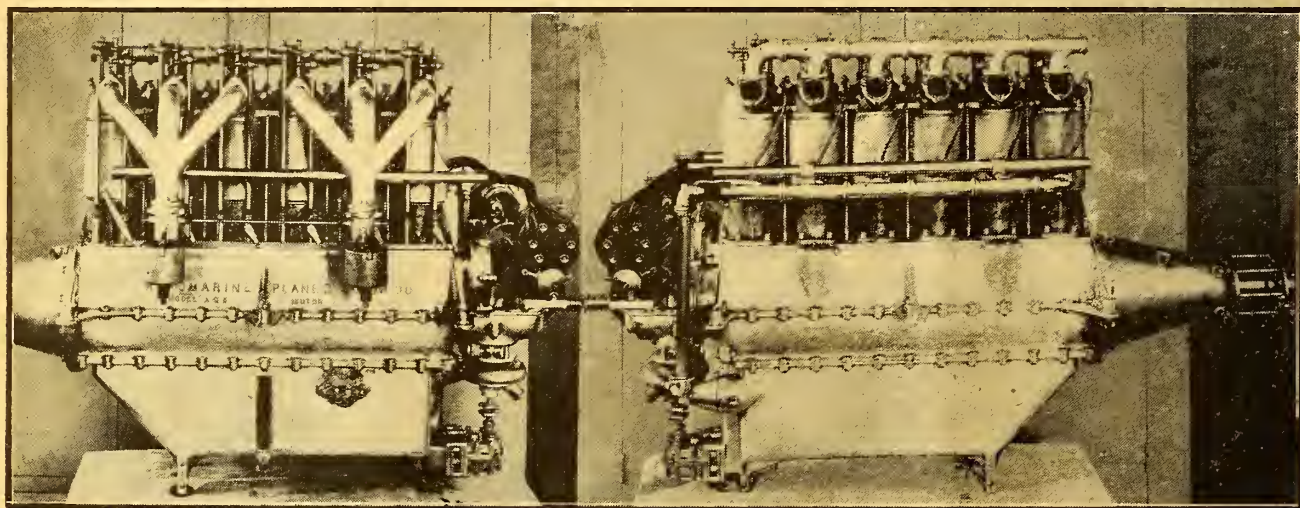
The communiqué of March 29th says:—

A German aerial squadron dropped bombs with good results on enemy railway depots, especially on the railway station in the western part of Molodetchno (a junction on the Vilna-Minsk line).

* * *

The communiqué of March 30th says:—

In an aerial fight which took place east of Bapaume Lieut. Immelmann put his twelfth enemy aeroplane out of action, this



THE LATEST AERO-MARINE MOTOR.

The Aero-Marine Company's latest aeroplane motor has been altered very considerably in detail from the first model, which was illustrated some considerable time ago in THE AEROPLANE.

In the early edition of the motor the cylinder heads were flat. The heads are now domed, and have cast water-jackets. The walls of the cylinders are covered by electrically deposited copper jackets, which terminate three inches from the cylinder base. This arrangement eliminates a number of water connections, and gives a better placing for the sparking plugs.

A somewhat ingenious arrangement has been made to make it possible to drive the propeller direct through the crankshaft, or indirectly through gears in a special housing which replaces the propeller nose.

The six cylinders are 4 5/16-in. bore by 5 1/8 in. stroke. The

general arrangement of the motor can be seen from the photographs. The crank-case is made of aluminium alloy, and a feature is the clean way in which the lower half is bolted to the upper portion, and the method adopted in bolting the oil sump to the bottom of the crank-case.

Oil is forced to all bearings under pressure by duplex-gear pumps, which also feed it back from the splash case to the main sump, which, by the way, is distinct from the crank chamber. The oiling system is unaffected by the flying angle, and the pumps and strainer are fitted externally to allow of ready inspection.

The total weight of the engine is 420 lbs. and the power 80-90-h.p. It is possible, however, to run up to 100-h.p. by using a geared-down propeller.

The Aeromarine Motor Company is located at the Times Building, New York City.—W. L. W.



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being an English biplane. Its occupants are prisoners in our hands.

The bombs dropped on Metz by the enemy caused the death of one soldier. Others were injured.

* * *

The communiqué of March 31st says:—

In the aerial fight in the region of Arras-Bapaume the English lost three biplanes. Two of their occupants are dead. Lieut. Immelmann has thus accounted for his 13th enemy aeroplane.

* * *

The communiqué of April 1st says:—

Our battle aeroplanes have shot down four French aeroplanes—one each near Laons and Mogeville (in the Woevre), which fell within our line, and also one each near Ville-au-Bois and south of Haucourt, which came to earth directly behind the enemy line. Bombs were freely dropped on the French flying ground at Rosnay (west of Reims).

* * *

The communiqué of April 2nd says:—

Great activity has been displayed by the aviators of both sides, and numerous aerial battles terminated in our favour. In addition to the enemy aeroplanes brought down beyond our lines, an English biplane was shot down near Hollebeke (north-west of Wervicq), and the occupants were taken prisoners. Oberlieut. Berthold has by this success put out of action his fourth enemy aeroplane. Further, south-west of Lens, an enemy aeroplane was brought down in flames by a direct hit from our anti-aircraft guns. Bombs were freely dropped upon Dombasle-en-Argonne (west of Verdun), which is strongly garrisoned with troops, and the aerodrome of Belfort.

[Apparently the German official communiqué bills an aviator as a star turn as soon as he has brought down his fourth enemy aeroplane.—Ed.]

* * *

The communiqué of April 2nd says:—

During the night of March 31st-April 1st one of our airship squadrons attacked London and the south coast of England. Bombs were freely dropped on the City between Tower Bridge and London Docks, the military camps in the north-western district of the City, the manufactories near Enfield, and the munition works at Wath (?) Abbey.

Another airship, after having successfully attacked a battery near Stowmarket, dropped a number of explosive and incendiary bombs on Lowestoft.

A further battery was silenced near Cambridge, the extensive manufacturing works of the town were attacked, and bombs were finally dropped on the fortification works and harbours on the Humber, whereby three batteries were reduced to silence.

All the attacks were successful, and reliable observations from the airships discerned the presence of numerous fires and the collapse of buildings.

In spite of violent bombardment all the airships returned, with the exception of L.15, which, according to a report, was compelled to descend in the water of the River Thames. Searches instituted by our naval forces have up to the present not been productive of any result.

[It is stated officially that this account is absolutely false in every particular, except that section relating to L.15.]

* * *

The naval communiqué of April 2nd says:—

On Saturday night a fresh attack was made on the English East Coast. Blast-furnaces, great iron foundries, and industrial works on the south bank of the River Tees, and harbour buildings near Middlesbrough and Sunderland were bombarded for an hour and a half with explosive and incendiary bombs.

Violent explosions, the collapse of buildings, and the outbreak of fires clearly indicated the good effect of our attacks. In spite of a vigorous anti-aircraft bombardment we suffered neither loss nor damage.

* * *

The communiqué of April 3rd says:—

Army and naval airships attacked during the night the docks of London and other important military points on the English coast, as well as Dunkirk.—Chief of Army Administration.

Eastern Theatre of War.—Nothing of importance has happened on the front. Bombs were dropped by squadrons of German aeroplanes on the railway stations of Pogorjelzy and Horodzielja, on the line to Minsk, as well as on the camp at Ostrowki, to the south of Mir. Bombs were also dropped on the railway establishments of Minsk by one of our airships.

* * *

The communiqué of April 3rd says:—

During the night of the 2nd inst. a fresh naval airship attack was made on the East Coast of England. Bombs were dropped on the blast-furnaces, large ironworks, and industrial centres on the southern bank of the River Tees. The harbour works of Middlesbrough and Sunderland were bombarded for half an hour with explosive and incendiary bombs.

Loud explosions and collapses of buildings due to fires clearly proved the success of the attack.

In spite of the intense enemy bombardment no damage or losses were sustained by us.

[This seems to be merely a different translation of the naval communiqué of April 2nd. Probably the mistake in date is due to some stupid English newsagency.—Ed.]

The "Fochrer Zeitung" of March 30th states that on Saturday, March 25th, two fishermen from Nebel, who were cutting seaweed, observed a large seaplane resting on the water near the shore, and apparently unable to rise.

They reported their discovery to the military, and, having taken a small detachment of soldiers on board their boat, went to investigate. The seaplane proved to be British, and was carrying three men, who tried hard to make the machine rise and thereby escape. The engine refused to function, whereupon the three men surrendered to the authorities.

* * *

It is reported from Copenhagen that during the British air raid on the Zeppelin station in Schleswig, none of the British aeroplanes were shot down either by German aeroplanes or coast batteries or the battery at the Zeppelin station. One of the machines did not reach the coast, and was discovered by a German fishing boat at sea. A boat put off from the island of Sylt and captured the machine. Two others reached the Zeppelin station ground and were fired at, but not damaged. Both had engine trouble, which forced them to land.

The attack was completely unexpected, a German inspection ship along this part of the coast being dealt with by the British squadron.

[If the above report is accurate it reflects but little credit on German gunnery and still less on British engine tuners or selectors.—Ed.]

RUSSIA.

The communiqué of March 29th says:—

Enemy aviators dropped bombs in the vicinity of the railway stations at Politzy and Luniniets.

* * *

The communiqué of April 1st says:—

One of our batteries brought down a German aeroplane, which was flying over our positions south of Lievensof. The machine was only slightly damaged. The aviators were taken prisoners.

* * *

Commenting on the position on the Eastern Front, the Petrograd correspondent of the "Morning Post" says:—"Over such a wide extent of front, all alive and active on the Russian side, it is plain that the Germans are unable to decide where precisely the head of the strategic scheme now is. They are extending their aerial scouting for a hundred miles to the rear of the Russian front in the hope of solving the problem."

[Which means that the best German reconnaissance machines are again over the Russian front, and as there is no need for long-distance reconnaissance over the British front our people in France naturally do not see many German reconnaissance machines. That does not mean, however, that we have assumed a "marked dominance" in the air. It is exceedingly foolish to jeer at the Germans for not doing such an unwise thing as to waste machines on unnecessary work.—Ed.]

ITALY.

The communiqué of March 28th says:—

Yesterday a fourth enemy aeroplane was hit by our rifle fire and brought down near Vittorio. The two aviators were taken prisoners.

* * *

The communiqué of April 3rd says:—

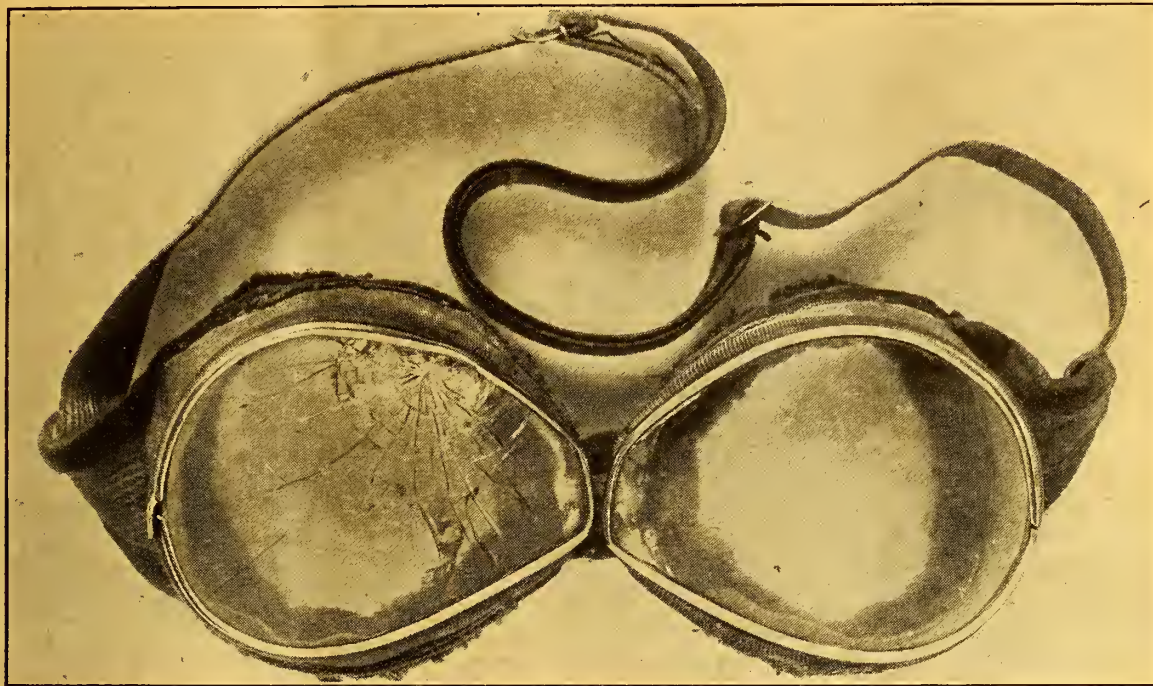
On Saturday night one of our airships, in spite of the powerful air-currents, succeeded in reaching the railway junction at Opicina, north of Trieste, on which it dropped 800 kilogrammes (16 cwt.) of high explosives. Although it made a target for the fire of numerous enemy batteries, it succeeded in regaining our lines safely.

* * *

The hostile "fly-round" mentioned in the report of 27th ult. was a very real fiasco. Two of the three machines brought down were biplanes, and one of these was a big affair with three up. Its crew, all uninjured, attempted to frighten the peasants into producing civilian garments. Perhaps they had none to spare. Anyway, they kept up the bargaining until the police arrived.

Reports from numbers of places round Pordenone tell of unexploding or harmless bombs dropped about on this occasion, and no one seems any the worse. General Cadorna's bulletin mentioned the death of a major in command of the raiding force.

Judging from this and the most recent failure at Venice, it is reasonable to hold that the Austrian air force is beginning to receive more than it is in a position to give.—T. S. H.

GERMAN SEAPLANE RAID ON DOVER—SUNDAY,
March 19, 1916

The above is a photograph of a pair of Triplex Goggles which one of the pilots was using when chasing the German raiders. The damage then caused will be observed. Undoubtedly the pilot would have lost his sight had he been using ordinary glass goggles.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

A useful blending of training and charitable incentive was effected one afternoon last week over Turin. Captain Minellone, with four other officers, each took up one of the rank-and-file of the detachment at Mirafiori, and showered upon the townsfolk, then taking the air on their feet, the tricolour bands from thousands of "pro-mutilated" matchboxes. Surely such a gentle reminder of his duties to the brave would induce the hardest-shelled egoist to buy his vestas for their benefit.

People found in the streets after the signals have been given which tell of the imminence of a "raid" are to be arrested by the patrols in some Italian towns.—T. S. H.

[A very sensible scheme.—Ed.]

The Copenhagen "Berlingske Tidende's" correspondent on the Austrian front states that the Italian air fleet is superior to that of Austria-Hungary. The large battleplanes of the engineer Caproni are specially effective. At the Isonzo front alone there are about eighty Caproni machines, and the Austrians have not succeeded so far in shooting down a single one of them.

SWITZERLAND.

It is reported that the Imperial German Government, through its representative at Berne, has informed the Swiss Federal Council that the result of the inquiry ordered by it has shown that the aviators who dropped bombs on the Swiss village of Porrentruy on March 31st were Germans, who had completely lost their bearing and believed themselves to be over Belfort. The Imperial Government expresses to the Federal Council its deepest regrets and informs it that the aviators will be punished.

GREECE.

It is reported that two of the German aeroplanes which raided Salonika during the small hours of March 27th were brought down, one at Ardzan, to the south of Doiran, and the other at Suho.

A later telegram alleges that three or four aeroplanes were brought down.

On March 28th five enemy biplanes dropped bombs on the extreme right of the British lines, and altogether, fifteen machines were reported at different points.

TURKEY.

The communiqué of April 2nd says:—

On March 30th two of our aeroplanes, under the command of Capt. Bödke, attacked hostile aviators who flew over Seddul-Bahr. In the air battle one hostile aviator fell into the sea, and the others fled in the direction of Imbros.

EGYPT.

It is reported that a raid by a Flight of R.F.C. aeroplanes on Bir-el-Hassana on March 26th did considerable damage. All six machines which took part returned safely.

It was arranged that the attack should be made from two points, four machines from one point, and two from the other to complete the destruction begun by the four machines. The scheme was carried out as arranged, and enemy work which had taken months to prepare was destroyed in half an hour. The aviators dropped 40 bombs on the reservoir, buildings, and trenches at Bir-el-Hassana, and, according to one observer, the camp looked like a volcano in eruption.

When the work had been finished a pilot noticed some infantry firing on the other pilots. He descended to within 200 ft., opened fire with a machine-gun, and scattered them across the desert.

Bir-el-Hassana is about 85 miles from the Suez Canal, due east of the head of the Great Bitter Lake, so that the flight of 170 miles was quite a considerable feat.

U.S.A.

The dearth of army aeroplanes in America is being keenly felt by those interested in aviation in the States. Two newspaper headings placed casually side by side in a New York newspaper hit the enthusiasts very hard. They read: "French Airman Brings Down His Eighth German Aeroplane," "Entire U.S. Aero Squadron Consisting of Eight Aeroplanes To Go To Mexico." It is to be hoped that the rebel Villa does not possess a tame Fokker, for Lieuts. Immelmann and Bödke have each brought down 13 enemy aeroplanes.

Apparently the "First American Aero Squadron" will play a part in the pursuit of General Villa in Mexico. The squadron is under the command of Captain B. D. Foullois. The names of the other officers in the squadron which may make American history are: Lieuts. J. R. Carberry, T. S. Bowen, I. A. Rader, C. G. Chapman, Capt. T. T. Dodd, Lieuts. H. A. Dargue, W. G. Gowell, W. G. Kilner and R. H. Willis.

The equipment of machines is not known. Arrangements are being made by the Aero Club of America to raise a reserve squadron of volunteers.

It is to be hoped that the expedition does not suffer from engine failure as the Mexicans are apt to be boorish. Some fear is being expressed by interested parties as to whether the 90 h.p. machines in the possession of the U.S.A. Government will be equal to the peculiar atmospheric conditions obtaining in Mexico.

A good deal of work has been done at the Government air station at San Diego during February, the weather being somewhat better than that of the previous month. Flying took place

on 21 days. During this period 570 flights were made, with a total duration of 257 hours 25 minutes. One hundred and eighty-nine passengers were carried.

* * *

The last two of the large Martin Model S hydros, Nos. 58 and 59, for the First Company, Second Aero Squadron, passed their acceptance tests and were shipped to Manila. Several notable flights were made with these machines during the tests for acceptance. On February 11th, Mr. Floyd Smith, of the Martin Company, with two passengers, piloted No. 58 to an altitude of 9,544 ft., and on February 15th, with three passengers, he piloted No. 59 to an altitude of 9,603 ft., establishing new world's records for hydros. On February 19th, Corp. Albert D. Smith made a duration flight in No. 59, after its acceptance, of 8 hours and 42 minutes, establishing a new world's record for endurance for hydros. On February 24th, Sergt. William C. Ocker, in No. 59, made two unsuccessful attempts to raise the world's altitude record for hydros with pilot alone, now held by Lieut. H. S. Saufley, U.S.N., for an altitude of 11,975 ft. On his first flight Sergt. Ocker reached an altitude of 11,666 ft., and on his second flight an altitude of 11,706 ft.—but 40 ft. greater than the first. Owing to unfavourable atmospheric conditions he was unable to go higher.

* * *

An interesting Curtiss machine, a number of which have been ordered by the U.S.A. Government, is a 15-ton triplane flying yacht, the first of which is nearing completion. The hull of the boat, or rather yacht, is 55 ft. long and 10 ft. extreme beam. The main cabin is 8 ft. wide, 19 ft. long, and 7 ft. from floor to ceiling. A raised pilot-house is built over the main body of the machine. The boat is fitted with false keel, bilge pumps and three watertight compartments. The span of the machine will be 133 ft., and its total weight about 20,000 lbs. It is hoped that the useful load will be about five tons.

The power plant is four special 250-h.p. Curtiss motors with an auxiliary motor to drive a water propeller. The above information comes from the Aero Club of America Bulletin, so it may be taken as within reasonable distance of being accurate.

The American papers state that the Curtiss Aeroplane Company are at work on a gigantic triplane seaplane with a span of 266 ft., which is to be fitted with ten 200 h.p. motors. It is said that the machine will have five air propellers, and in addition a water propeller driven by a 160 h.p. motor. It is alleged that the machine will carry a crew of twenty men, 6,000 lbs. of bombs, four machine-guns and fuel for a thousand miles. Naturally, one awaits confirmation of the accuracy of the statement in whole or part, but why 20 men?

* * *

It is reported that one, Porter H. Adams, of Boston, Mass., proposes to fly round the world in a few months' time on a large size in seaplanes, with a capacity of 32,400 lbs. The machine will be 188 ft. in span and 85 ft. long. The proposed itinerary will be Honolulu, 2,861 miles; Waki Island, 1,440; Guam, 1,634; Manila, 1,400; Saigon, in Indo-China, 1,000; Gulf of Aden, 1,960; Port Said, 1,000; Spain, near Gibraltar, 1,980; Azores, 1,440; Boston, 2,290. Adams has figured out 14 days for the trip.

Further developments are awaited with interest. The date of Mr. Adams' funeral is not definite, but at a guess one would locate it somewhere between America and Honolulu.

AN OPPORTUNITY.

There are still vacancies for examiners in the Aeronautical Inspection Department. The pay, including allowances, is £3 15s., rising to £4 5s., with prospects of further advancement.

Candidates should preferably be gentlemen with a good theoretical education, practical experience in engineering, and a working knowledge of scientific measuring instruments.

Preference will be given to those who are unlikely to be called up for military service, and who are not now usefully employed on War work.

Applications should be made to the Chief Inspector, Aeronautical Inspection Department, War Office, 13, Albemarle Street, London, W.

STEEL RESEARCH.

The Society of Motor Manufacturers and Traders reports that good progress is being made by the Joint Committee, which is composed of representatives of the Admiralty, War Office, Royal Aircraft Factory, Aircraft Steel Makers Committee, Iron and Steel Institute, Institution of Automobile Engineers, and the Society of Motor Manufacturers and Traders, Ltd. The investigation is being conducted to establish the physical properties of the standard automobile steels, and the factors governing testing procedure in connection therewith.

Offers of steel gratis have already been received from Cammell, Laird and Co., Ltd.; W. Beardmore and Co., Ltd.; Messrs. Brown, Bayley and Co.; Messrs. D. Doncaster and Co.; W. T. Fletcher, Ltd.; T. Firth and Sons, Ltd.; Hadfields, Ltd.; Steel, Peach and Tozer, Ltd.; Sir J. Jonas, Colver and Co., Ltd.; Vickers, Ltd.

The majority of these offers have been provisionally accepted. Messrs. Kayser, Ellison and Co., Ltd., have undertaken to do any rolling required.

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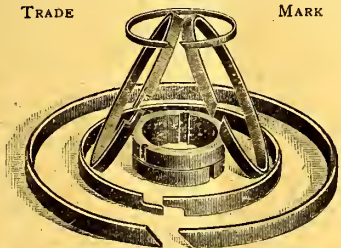
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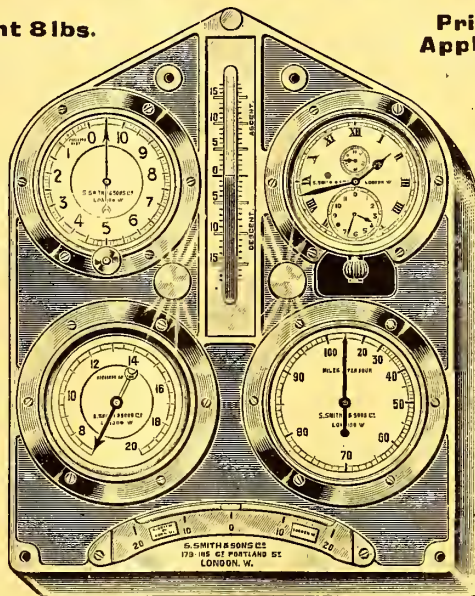
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THE ROYAL AERO CLUB.

The annual general meeting of the Royal Aero Club was held on March 28th at 166, Piccadilly, London, W. Professor A. K. Huntington, vice-chairman, presided, and there were about 40 members present.

Professor Huntington, in opening the meeting, reviewed the work of the year, and said that from the accounts for 1915 it could be seen that the Club's finances were very satisfactory. In spite of the war, the Club had been more successful than in any previous year.

A large number of aviators' certificates had been granted by the Club during the year.

The following British record had been made during 1915:—Height—Pilot alone:—H. G. Hawker, at Hendon, June 6th, 1915, on a Sopwith biplane, 80-h.p. Gnome engine, 18,393 feet.

The subscriptions to the Flying Services Fund, which was being administered by the Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependents of those who are killed, amounted to £10,591 8s. 3d., the total of the subscriptions at the end of 1915 being £10,125 13s. 8d. A number of grants and allowances had been made from the Fund, and the accounts had been audited up to the end of 1915.

The number of members who had died on active service was 55.

A great loss to the Club had been the death of Lieut.-Col. J. D. B. Fulton, C.B., who was a member of the committee.

In spite of these losses, the membership had been maintained and for some time had been increasing.

In September last the hours of opening the Club had been extended to 10.30 p.m. each day, including Sunday, and it was found that this extension had been much appreciated by the members.

On account of the progress of aviation and the Club being used more now than heretofore, the question of acquiring a Club House has been raised, but the general opinion was that it was not wise at the present time to make a move in this direction. The House Committee was, however, going into the question of suggesting further developments to the committee.

He thought that there was no need to refer in detail to the good work of the Flying Services in the war, as this was only too well known to the members. A large number of honours had been gained, including 6 V.C.s., 38 D.S.O.s., 8 Distinguished Service Crosses, and 48 Military Crosses. It was gratifying to note that many of these honours had been gained by members who took a great interest in the Club, and in this connection he would like to mention, amongst others: Commander C. R. Samson, R.N.; Wing-Com. R. B. Davies, R.N.; Squad-Com. Spenser D. A. Grey, R.N.; Squad-Com. R. L. G. Marix, R.N.; Squad-Com. E. F. Briggs, R.N.; Squad-Com. J. T. Babington, R.N.; Squad-Com. A. W. Bigsworth, R.N.; Flight-Com. S. V. Sippe, R.N.; Capt. Robert Loraine; and the late Lieut. W. B. Rhodes-Moorhouse.

The Club flying-ground had been occupied by the Admiralty since December, 1914, and was being used entirely as a naval air station, and the Committee were very glad that the Club had been able to be of assistance to the country in this way.

Everyone would agree that the achievements in aviation had been remarkable in so short a time, and it was a matter for congratulation that the Club, as a technical club, had done so well in its development.

A discussion followed on the question of extending the premises of the Club, in which the following took part: Com. C. R. Samson, R.N., Capt. Loftus A. Bryan, Mr. P. Maréchal, Mr. Henry Knox, Mr. C. G. Greenhill, Mr. R. Haden Tebb, and Mr. R. W. B. Billingham.

On the motion of Flight-Commander C. F. Pollock, seconded by Capt. C. H. Saunders, a unanimous vote of thanks was passed to the Chairman.

On the motion of the Chairman, the Vice-President and Council for the ensuing year were unanimously elected as follows:—

Vice-President:—The Rt. Hon. Lord Northcliffe.

Council:—S.A.I. Prince Roland Bonaparte (President F.A.I.): the Rt. Hon. the Earl of Hardwicke; the Rt. Hon. the Earl of Lonsdale; the Rt. Hon. Lord Howard de Walden; the Rt. Hon. Lord Kinnaird, F.R.G.S.; the Rt. Hon. Lord Montagu of Beauchieu; Admiral of the Fleet the Rt. Hon. Sir Edward Seymour, P.C., G.C.B., O.M., G.C.V.O.; Admiral the Hon. Sir Edmund Fremantle, G.C.B., C.M.G.; Count Henry de La Vaulx (Vice-President Aero Club de France); Sir David Salomons, Bart.; Sir Norman Lockyer, K.C.B., F.R.S.; Professor Sir William Crookes, O.M. (President Royal Society); Sir Hiram S. Maxim; the Rt. Rev. Bishop Welldon; Martin Dale; Henry Deutsch de la Meurthe (President Aero Club de France).

The election of the following member to the Committee was announced:—Lieut.-Col. R. K. Bagnall-Wild, R.E.; Lieut.-Col. W. D. Beatty, R.E.; G. B. Cockburn; Lieut.-Col. F. Lindsay Lloyd; Capt. J. T. C. Moore-Brabazon, R.F.C.; Com. C. R. Samson, R.N., D.S.O.; A. Mortimer Singer; T. O. M. Sopwith; the Marquess of Tullibardine, M.V.O., D.S.O., M.P.

THE INVASIONS OF ENGLAND.

The following is an approximately accurate list of airship raids on England:—

Date.	District	Casualties.	
		Killed.	Inj.
1915.			
Jan. 19	Yarmouth and King's Lynn	4	9
Feb. 21	Colchester	—	—
April 14	Blyth and Tyneside	—	2
April 16	Lowestoft	—	—
April 29	Ipswich and Bury St. Edmunds	—	—
May 10	Southend	1	—
May 17	Ramsgate	2	8
May 27	Southend	3	—
May 31	Outlying Districts of London	6	—
June 4	East and South-East Coasts	—	—
June 6	East Coast	24	40
June 15	North-East Coast	15	15
Aug. 9	East Coast	13	12†
Aug. 12	East Coast	6	23
Aug. 18	Eastern Counties	10	36
Sept. 7	Eastern Counties and London District	17†	39†
Sept. 8	Eastern Counties and London District	20	86
Sept. 11	East Coast	None	None
Sept. 12-13	East Coast	None	None
Oct. 13	Eastern Counties and London Area	55	114
1916.			
Jan. 31	Midland Counties	67	117
March 5	Yorkshire and 7 other Counties	12†	33†
March 31	Eastern Counties and North-East Coast	43	66
April 1	North-East Coast	16	100
April 2	Scotland and S.E. England	10	11

† Corrected figures.

These figures give a total of 324 killed and 711 injured.

* * *

It is reported that on Saturday, April 1st, a resident in one part of the Eastern Counties picked up in a meadow what appears to have been a message dropped by one of the Zeppelins that took part in Friday night's raid. It was in the form of a piece of pasteboard, rectangular in shape, and slightly larger than a postcard. On one side, written in pencil, were the words: "Vengeance for L.19," with a signature underneath. On the reverse side were some words in German, but the writing was so indistinct as to be undecipherable. Attached to the card by means of a piece of copper wire was a steel bolt such as might be used in the construction of the airship, which the sender of the message had employed as a weight to bring the card to the ground. The finder of the card at once handed it to the police, who have forwarded it to the Home Office.

Petrol tanks and other impedimenta cast out by a damaged Zeppelin during the recent raids were on private exhibition in the War Office quadrangle, and were subsequently removed to the War Office buildings.

[The official reports of the raids of March 31st, April 1st and 2nd appear in their proper places under British Military and German Notes.—Ed.]

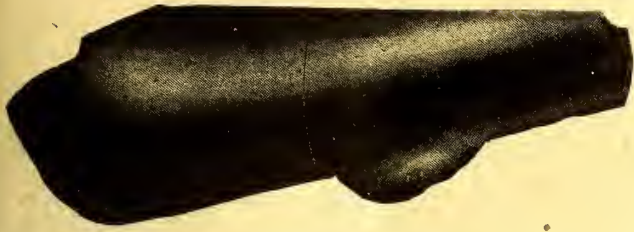
YET ANOTHER DOPE POISONING CASE.

At West Ham, on March 10th, an inquest was held relative to the death of Ellen Jane Clark, aged 20, employed by a firm in the district on aeroplane varnishing work. The Coroner said it was alleged that the deceased died as a result of inhaling fumes during her employment. Dr. Legge represented the Home Office. The mother stated that the girl was quite healthy until about five weeks ago.

Stephen Alfred Saffron said the deceased was put on to the new work in September. On February 23rd six of the girls in that department were medically examined, and as a result deceased was removed to another department. In reply to Dr. Legge, witness said the girl worked from 6 a.m. to 6 p.m., and 6 a.m. to 1 p.m. on Saturdays, and occasionally she had worked overtime. Stewart Russell, works manager to the firm, described the work performed by the deceased.

The Coroner remarked that this was a new trade, and as practically nothing was known about it it was not yet possible for the Home Office to make regulations regarding its use. Unfortunately, they had to buy their experience. In reply to a juror the Coroner said he fancied there had been one previous case of this description. After retiring the jury returned a verdict in accordance with the medical evidence, and recommended the Home Office to take steps with a view to preventing a recurrence.

[About time the Home Office did take steps. There is no difficulty in making non-poisonous dope. Dozens of lives have been lost or wrecked by the ignorance and apathy of those in authority who refuse to handle the dope question properly.—Ed.]



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The Development of German Aeronautics.—continued.

BY W. L. WADE.

CURRENT PERFORMANCES.

The last important public competition to be held in Germany prior to the outbreak of war was the Prince Henry Circuit, which opened on May 15th, 1914.

The course for the first stage was via Darmstadt, Mannheim, Pforzheim, Strassburg, Speyer, Mannheim, Worms to Frankfort-on-Main, 400 kms. The second stage from Frankfort via Wiesbaden, Coblenz, Cologne, back to Frankfort, 375 kms. Both stages had to be completed between the morning of the 17th and the evening of the 19th of May. May 20th to May 22nd were set for the third and fourth stages: Frankfort, Marburg, Cassel, Braunschweig, Hamburg, 440 kms., and Hamburg, Hanover, Minden, Herford, Muenster, Osnabrueck, Bremen, Hamburg, 565 kms. On May 23rd a strategical scouting flight between Hamburg and Cologne was to be made, and a tactical reconnaissance near Cologne on May 24th.

The proceedings opened at Darmstadt with a four hours' flight, arranged by the local committee, and witnessed by Prince Henry of Prussia and the Grand Duke

and Grand Duchess of Hesse. Unfortunately, Lieut. Carganico, an officer of renown, side-slipped and broke his thigh. Steffen's machine was burnt in a train. Lieut. Canter, who in 1913 won both the Prince Henry Cup and the Emperor's Prize, withdrew, as the steel frame supporting the wings of his Rumpler monoplane had been injured during tests, and, although it was repaired immediately, he declined to start with the mended machine. Similar reasons stopped Captain von Detten from the start. Stiefvater passed the preliminary tests with a new Dove, built by Prince Siegismund, and was permitted to start *hors concours*.

On May 17th the competitors started at intervals of one minute, Lieut. von Beaulieu first at 4.2 a.m. on an L.V.G. biplane. After nearly thirty minutes, due to the controls at Mannheim and Pforzheim not having reported themselves ready, the other twenty-four men were sent away as follows:—Lieut. von Thuena, L.V.G. biplane; Viktor Stoeffler, Aviatik biplane; Lieut. Bonde, Albatros biplane; Lieut. Schlemmer, L.V.G. biplane; Lieut. Em-



SOME FAMOUS GERMAN PILOTS.—Top Row, Left to Right: Herrn. Friedrich, Hanuschke, Liönekögl, Jeannin, Thelen. Middle Row: Herren Stöffler, Reiterer, Lange, Gruner, Oppermann. Bottom Row: Herren Sedelmayr, Breitbeil, Krieger, Laitsch, and Böhm.

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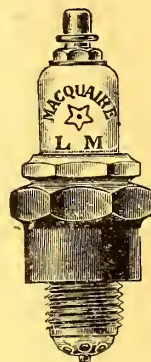
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rich, Otto biplane; Lieut. Waltz, L.V.G. biplane; Lieut. von Hiddessen, Albatros biplane; Lieut. von Buttlar, L.V.G. biplane; Lieut. Pfeiffer, Albatros-Dove; Schauenburg, A.E.G. biplane; Lieut. Hofmann, L.V.G. biplane; Lieut. Kolbe, Albatros-Dove; Thelen, Albatros biplane; Lieut. Ladewig, Rumpler-Dove; Schlegel, Gotha-Dove; Lieut. Joly, Gotha-Dove; Lieut. Gayer, Aviatik biplane; Paschen, German Bristol-Dove; Lieut. Hantelmann, Albatros-Dove; Lieut. Pretzell, Albatros-Dove; Friedrich, Rumpler monoplane; Freindt, Jeannin Steel-Dove; Krumsiek, Aviatik-Dove; Kastner, Albatros-Dove.

Laitsch, who had been doctoring his machine all night, got under weigh at 7 a.m., but the new radiator was defective and caused a descent, and he retired. Each machine carried a military observer and a number of message cards, which were flung out at the controls.

Soon after 6 a.m. came the news that the L.V.G. biplane piloted by Lieut. Waltz, with Lieut. Mueller, had side-slipped in landing. The petrol tank had exploded, burning the observer to death.

At 7 a.m., 20 of the 25 starters arrived in Strassburg. On the stage between Pforzheim and Strassburg, Lieut. von Hiddessen was forced to land, which he did so heavily as to smash his machine completely. Nineteen pilots arrived at Frankfort in times ranging from Stoeffler's 3 hrs. 55 mins. to Thelen's 5 hrs. 17 mins. Schlegel ran into a fence and hurt his hand; Thelen had to alter his radiator, and Lieut. Ladewig to make some odd repairs. The rest set out on the second stage.

Viktor Stoeffler had a motor defect near Holzhausen, and damaged his Aviatik severely in landing. Lieut. Kolbe, who conveyed Lieut. Rohde, was driven out of his route between Cologne and Frankfort by a strong easterly wind, and was capsized and fell from 400 metres. The pilot got off almost scot free, but Rohde was killed.

On May 18th a number of exhibition flights occurred at Frankfort, Fokker's demonstrations of looping, etc., being exceptionally fine. Definitely out of competition were the following:—Capt. von Detten, Lieuts. Carganico, Kolbe, von Hiddessen, and the civilians Laitsch, Stoeffler, Freindt, Friedrich, and Schlegel.

THE LAST STAGES.

At 4.20 a.m. on May 20th the competitors started for Hamburg, 440 kilometres, via Marburg, Cassel, and Brunswick, in the following order:—Schauenburg, Serno, Hofmann, Emrich, Ladewig, Bonde, Kastner, von Beaulieu, Joly, von Buttlar, Schlemmer, Hantelmann, Thelen, von Thuena, Gayer, Krumsiek, Paschen, Stiefvater, and Schroeder. Of these, Serno, Hofmann, Emrich, Paschen, Stiefvater, and Schroeder were *hors concours*. Lieut. Pfeiffer arrived in Frankfort from Wiesbaden on the second stage soon after 6 a.m., and set off for Hamburg. Several men landed at the Cassel control, where Stiefvater ran into Lieut. Kastner's Albatros-Dove, smashing up both machines. Schauenburg had to return to Frankfort for a new radiator. At 9 a.m. Lieut. von Buttlar arrived at Hamburg, closely followed by Lieuts. von Beaulieu, von Thuena, and Schlemmer. The latter only threw out his report without landing, and continued on the fourth and last stage. Lieut. Gayer, too, after landing in Hamburg, went on at once.

The finish of the Prince Henry Circuit left the competitors classed provisionally as follows:—

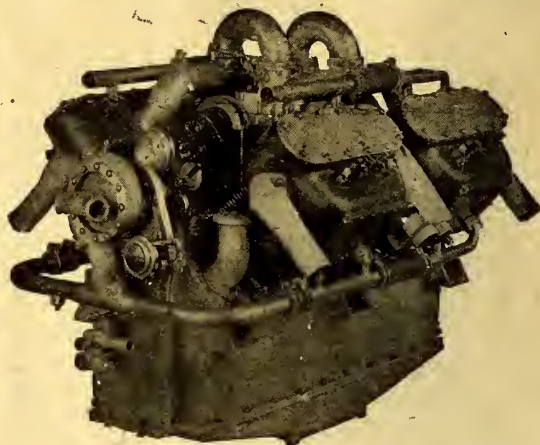
The Kaiser's prize for military aviators:—1, Lieut. von Thuena (L.V.G.-Mercédès), 17 hrs. 15 mins.; 2, Lieut. von Beaulieu (L.V.G.-Mercédès), 17 hrs. 30 mins.; 3, Lieut. von Buttlar, 17 hrs. 45 mins.; 4, Lieut. Joly; 5, Bonde; 6, Muehlig; 7, Ladewig; 8, Gayer; 9, Pfeiffer.

Prince Henry's prize for civilians:—1, Krumsiek; 2, Thelen; 3, Schauenburg; 4, Paschen.

From this it may be observed how the German Government encouraged competition among officers and civilians alike.

(To be continued.)

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THE BLIND LEADS THE BLIND.

On March 28th Mr. Eric Bruce read a paper (with lantern illustrations) at a meeting of the Royal Colonial Institute at the Hotel Cecil. Mr. Evelyn Wrench was in the chair.

The main theme of the paper was the part the Colonies have played in supplying aviators and aeroplanes to the British Forces. This was followed by a rapid sketch in popular and fairly inaccurate terms describing the evolution of the aeroplane from early experimental efforts, but the lecturer became still further at sea when he commenced to discourse on the production of aeroplanes as it affects the Royal Flying Corps.

The lecturer said:—

"As is well known, the British Royal Aircraft Factory has evolved most efficient aeroplanes, which are doing excellent work at the Front. For obvious reasons, at this national crisis it is impossible for me to speak of their details. I may, however, say that our aeroplanes in the war have given evidence of three most essential qualities—speed, inherent stability and strength."

This statement exhibits a lamentable ignorance of the shortcomings of R.A.F. products. Anyhow, the majority of the R.A.F. machines now on active service were designed prior to the war, so the lecturer would have been perfectly at liberty to have said at least that most of them were tractor biplanes with dangerously low-powered air-cooled engines, dangerously slow, and with a tendency to be uncontrollable.

Mr. Bruce endorsed the long exploded view of Dr. Glazebrook that stable machines are essential for use on active service, owing to the necessity for the rapid training of pilots. A pilot who can only be trusted to fly a B.E.2c. is not fit to fly on active service at all.

The following statement is woefully inaccurate:—

"Indirectly we can ascribe the attainment of stability in aeroplanes to the profound mathematical researches of Professor Bryan, and thus to the honour of this country belongs the attainment of the great desideratum of human flight."

Professor Bryan would be the first to disclaim any credit for the discovery of stability in aeroplanes. Nevertheless, his research work has been of great value. As a matter of fact, private manufacturers in England, France and Germany produced stable aeroplanes years before the R.A.F. turned out the first of its greatly advertised stable machines.

The first Fokker monoplane built in Germany in 1912 was so stable that no lateral control of any kind was provided, and the machine flew itself in 50-mile gales without any encouragement from the pilot. The Austro-German Etrich monoplane which competed in the 1911 "Daily Mail" race was almost equally stable.

The Germans have come to the conclusion that complete control of his machine is necessary to any decently trained pilot, and this has a lot to do with the all-round efficiency of the German aeroplanes. The longitudinal stability of German machines is, as a rule, adjustable by the pilot himself while in the machine.

Mr. Bruce discounted the powers of the Fokker monoplane, and laid stress on the fact that their radius of action is poor. What does matter, however, is that the Fokker monoplane is the right machine for its job, which is to prevent enemy machines from penetrating the German lines, and, unfortunately for us, it has been exceedingly successful in this work.

It is a thousand pities that a body of the importance of the Royal Colonial Institute should have been condemned to listen to the disquisitions of a doubtless well-meaning gentleman who obviously possesses but a superficial acquaintance with his subject.

THE LANG PROPELLERS.

The man who takes an intelligent interest in his work and specialises from the beginning of an industry deserves to succeed, and Mr. A. A. Dashwood Lang admittedly comes under this heading. What he does not know about propellers would not make a very interesting pamphlet, but an account of his varied experiences since he embarked upon this branch of the aircraft industry would fill a bulky book—and it would be an amusing one, too, for there is no one in the whole industry with a greater fund of genuine humour than Mr. Lang. That he is also a hard worker, however, is amply demonstrated by the magnitude of his well-equipped and spacious factory at Weybridge.

The making of a modern propeller is a fine art, and if all the work is done by hand, as was the case not so long ago, it is also a luxury, but at the Lang works one finds many clever pieces of mechanism, evolved or invented by Mr. Lang himself, which make for speed and absolute accuracy of workmanship.

Many of his labour-saving devices, and of his instruments designed to ensure accuracy in the finished product, are marvels of ingenuity, and no doubt will be adopted by the authorities, who will be glad to avail themselves of the fruits of his brain and of his physical labours, and, being officers and gentlemen, they will, of course, acknowledge his services in a suitable manner.

He has carried out many important contracts for the supply of all kinds of propellers, both for aeroplanes and dirigibles, and has facilities for turning out any sizes and designs. With a properly organised factory, well situated and managed, with skilled employees, and able colleagues in Messrs. May and Sprott, the business should continue to expand indefinitely and rapidly.—D. W. T.

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Replying to Mr. Rowlands in the House of Commons on March 21st, Mr. Brace said:—

As I informed my hon. Friend in answer to a similar inquiry a fortnight ago, the obstacle to the use of the non-poisonous dope is that one of the essential ingredients is not produced commercially in this country at present, and sufficient quantities of it are not available, but the Departments concerned are making every effort to arrange for an increased supply. Meanwhile, new instructions embodying further administrative measures for guarding against the danger have been issued by the Home Office to all aircraft factories, and steps are being taken to extend the use by contractors of a dope made under War Office supervision which contains as little tetrachlorethane as possible.

[Mr. Brace appears to be misinformed. The chief obstacle to the use of non-poisonous dope appears to be that the Royal Aircraft Factory endeavoured some months ago to corner the supply of material for making ordinary poisonous dope, or, at any rate, that they bought large supplies of such material. It is now necessary for the R.A.F. to get rid of this material before the use of poisonous dope is prohibited. Consequently efforts are being made by officialdom to force this dope on to aeroplane manufacturers.]

It may be true that the poisonous R.A.F. dope contains as little tetrachlorethane as possible, but it is also true that it contains very little dope. The result is that many more coats of this excessively diluted stuff have to be used than would be needed if any good dope were used. As the manufacturer has to pay the same price per gallon for R.A.F. dope as for good dope, and has to use much more of it, his dope costs him far more. Also, as more coats have to be put on to the work the amount of tetrachlorethane released to poison the workpeople is just as great as if any other dope were used. The only real difference is that the R.A.F. make more profit than the ordinary dope manufacturer.—Ed.]

PATRIOTISM.

The following letter from a reader of THE AEROPLANE, March 23rd, 1916, is the best reply to those who believe it unpatriotic to tell the truth. Mr. Tennant might note it with advantage:—

"Sir,—I think we are patriotic even though we really cannot feel as proud of our country as we might wish. The man whose heart swells and blood tingles at the glory of his country is not necessarily more patriotic than the one whose blood boils and brow darkens at the things that tarnish that glory. In fact, the latter is, perhaps, a more useful form of patriotism though a painful one withal.

"The former is the ignorance which is bliss; the latter is the folly to be wise. If we were less patriotic doubtless we should feel less disgusted. One patriot may enthuse over the glories of Loos and Anzac, while another patriot may feel savage over the hideous blunders that threw away that heroism. The spirit that deplores the dark side of the picture is not necessarily less patriotic than that which rejoices over the bright side.

"It is a curious thing that nearly all the events that are numbered among the 'glories' of our country are the results of hideous mistakes that have been redeemed at the eleventh hour by some deed of amazing heroism. And, curiously, they are made more of than the wise acts that have averted disaster. The defence of Lucknow has achieved far more fame than the astute diplomacy which averted the mutiny from the Punjab and Scind.

"It seems to me there is a moral behind your story of the policemen who went to arrest the Zeppelin. From the point of view of its utter futility it is screamingly funny, but one cannot help but admire the spirit of the men. There was a duty to be done—or they thought so—and they rushed into it without stopping to consider the inadequacy of their equipment or the inevitable consequences to themselves. Surely it is a faint echo of the spirit of Sir Philip Grenville's fight of 'The one and the fifty-three,' when he 'held the power and glory of Spain so cheap he dared her with one little ship and his English few.'"—H. W. S.

HENDON NOTES.

The recent gales did considerable damage to the sheds at the London Aerodrome. One of those belonging to the L. and P. School was practically demolished, together with two others adjoining used for service purposes, and several machines were put out of action altogether. This is very hard lines on the always active L. and P. School, though doubtless Mr. Warren and his colleagues will quickly have everything in full swing again.

By way of atonement for its bad behaviour earlier in the week, the weather on Saturday and Sunday was as near perfection as is possible in this imperfect world. The bright sunshine brought out large crowds of visitors, the attendance on Sunday being equal to any average summer's day in the pleasant times before the war. Many old familiar faces were there, and the line of motor-cars extended almost the whole length of the enclosure. The newly-decorated restaurant was crowded the whole afternoon, and it only wanted the megaphone expert to complete the picture.

There was plenty of flying on both days. On Sunday Mr. H. Hawker came over from Brooklands and gave an exhibition of what a Sopwith scout can do when it likes, and the various estimates of its speed overheard among the crowd were quite entertaining. Mr. Clifford Prodger flew over from Bognor on a Short biplane and came down for tea, leaving later for another aerodrome. He seems to find his way across country with the greatest of ease and is rapidly becoming one of our best pilots.

Many passengers were carried by the Grahame-White machines, and other flights by Beatty-Wrights, Hall-Caudrons and an L. and P. machine contributed to the interest of the afternoon. The agitation for an efficient air service appears to have aroused fresh attention among the general public.—D. W. T.

A GRAHAME-WHITE BOOKLET.

A very interesting and useful booklet has this week been published by the Grahame-White Aviation Company, Ltd., bearing the title, "Learning to Fly." One doubts whether any publication has appeared so far which gives so much practical information to prospective pupils as does this one.

After introductory chapters on the prospects of an aviator and the choice of a school there follows a complete description of the various stages of learning, clearly illustrated by photographs and diagrams of school machines. There are also various views of the new Grahame-White Works, and by way of showing what has been accomplished in the past, a list of Grahame-White pupils who have achieved distinction in the Services or in civilian posts is appended. The list is one of which any school might be proud.

It is a publication worth having, and anyone genuinely interested in the subject will receive a copy, post free, on applying to the Company at the London Aerodrome, and mentioning THE AEROPLANE.—D. W. T.

THE PETROL PRICE QUESTION.

Motorists are reminded that there has been no increase in the prices of "Shell" motor spirit. The current prices for England and Wales are: "Shell" 2s. 2d., "Shell II" 2s. 1d., and "Crown" 2s. per gallon (Scotland and Ireland one penny per gallon higher). There is no reason why motorists should be charged more. Every can is sent out properly sealed, and the seals should be intact when they reach the user. Motorists who are unable to obtain one-third of their usual supplies at the current prices should write to the Asiatic Petroleum Co., Ltd., St. Helen's Court, Great St. Helen's, London, E.C.

AN EXTENSION.

The British Chuck and Piston Co., Ltd., of Coventry, announce that in consequence of the increasing demands for piston rings, gudgeon pins and shackle bolts, in which they specialise, it has been found necessary to put up a new factory at Holbrook Lane, Coventry.

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Instructors for the week: Messrs. Biard, Hale, Manton, Pashley, Russell, and Winter.

Pupils with Instructor: Prob. Flight Sub-Lieuts. Griffin and McHardy.

Certificates were taken during the week by Prob. Flight Sub-Lieuts. Donald and Melhado.

Machines in use: Grahame-White biplanes.

AT THE GRAHAME-WHITE CIVILIAN SCHOOL.

Instructors for the week: Messrs. Biard, Hale, Manton, Pashley, Russell, and Winter.

Pupils with Instructor: Messrs. Box, Sloden, Spencer, Parkinson, Forster, Scheidt, and Smith.

Eights with Inst.: Messrs. Baragar, Eichelbrenner, Franck, Grassett, Hathaway, Holman, Sandys, Walk, Williams (F.), Williams (S.), Kryn, Leigh, and Henshaw.

Pupil doing figures of eight or circuits alone: Mr. Tanner.

Certificates were taken during the week by Messrs. Butler and Rigby.

Machines in use: Grahame-White biplanes.

AT THE BEATTY SCHOOL.

Instructors for the week: Messrs. G. W. Beatty, W. Roche-Kelly, G. Virgilio, R. W. Kenworthy, L. L. King, A. E. Mitchell, H. Fawcett.

Pupils out during the week: Messrs. Fong, Jones, Cuthbert, Chang, Collier, Edwards, Drysdale, Branford, Lindsey, Sellars, Barrow, Mossop, Patterson, Podmore, Parsons, Hungwan, Martin, Knox, Smith, Phillips, Tjaarda, Ping, Tow, Earl, Skeet, Brewerton, Stanley, Yam, Sing, Ching.

Certificates were taken during the week by Messrs. G. A. Thompson, R. H. Edwards, F. W. J. Collier, J. M. Drysdale.

Machines in use: Betty-Wright dual control and single-seater propeller biplanes and Caudron dual-control and single-seater tractor biplanes.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors for the week: Messrs. Ed. Baumann, Felix Ruffy, Ami Baumann, Clarence Winchester and André Thomsen.

Pupils with instructor: Messrs. Portela, Edgar, Winter, Dobson, Torres, Hoskyns, Westlake, Maya, Cuthbertson, Capt. Bailey, Williams and Williams, J. B. Thomas, Junr.

Pupils doing straights or rolling alone: Baron D'Opstael, Messrs. Maya, Cox, Wood, Portela, Torres, Muspratt.

Pupil doing eights or circuits alone: Baron D'Opstael.

Machines in use: 50 and 60 h.p. Ruffy-Baumann tractor biplanes.

Another new machine is about to be put in commission.

AT THE HALL FLYING SCHOOL.

The following pupils were out during the week:—With Mr. A. Chave: Messrs. Longton, Smith, Cosgrave, Neal, Chapman, Mahoney, Halliday, Rochford, Roberts.

With Mr. Cecil M. Hill: Messrs. Glegg, Osmond, Taylor, Le Grice, Gudge, Rayne, Hucklesby, Robinson, Duncan, Collier, Dickson, Pennell.

With Mr. H. F. Stevens: Messrs. L. W. Ormerod, W. H. Longton.

Certificates were taken by Messrs. L. W. Ormerod and W. H. Longton.

Mr. W. H. Longton took only seven weeks to qualify at the Hall School, a similar period being taken by Lieut. Brandon, R.F.C., who was cited in the War Office communiqué on the recent raid. He, too, learned to fly at the Hall School.

AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors for the week: Messrs. W. T. Warren, M. G. Smiles, H. Sykes, G. V. Aimer, and W. T. Warren, jun.

Pupils doing straights or rolling alone: Messrs. Crawford, Svendsen, Jennings, Ferris, Archer, Houba, Moore, de Goussencourt, and Creaghan.

Pupils doing figures of eight or circuits alone: Messrs. Vain XIII, Verbessem, and Starey.

Certificate taken during the week by Mr. S. H. Starey, his landings being specially well judged.

Machines in use: L. and P. tractor biplanes.

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AT THE BOURNEMOUTH SCHOOL.

Pupils rolling: Messrs. J. Wilson, G. Mouton, Morris Adamson, and Kennedy.

Pupils doing straights alone: Messrs. Smith, O. Wilson, Morley, and W. Mouton.

Pupils doing half circuits alone: Messrs. Simpson, Dubois, Meus and Devos.

Eights, etc.: Mr. Bonnevie.

Machines in use: 35, 45 and 60 Caudrons (biplanes).

Everyone was more than pleased to receive a visit on Thursday from Mrs. C. de Beauvoir Stocks, who took great interest in the school work and in sundry exhibition flights given by S. Summerfield.

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Pipe Bending.—Let us assist you with those copper, induction and water pipe bends; silver soldering, radiators, general metal work, etc.—Love, c/o Easun, Torriano Avenue, London, N.W.

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THE AEROPLANE

WEDNESDAY, APRIL 12, 1916

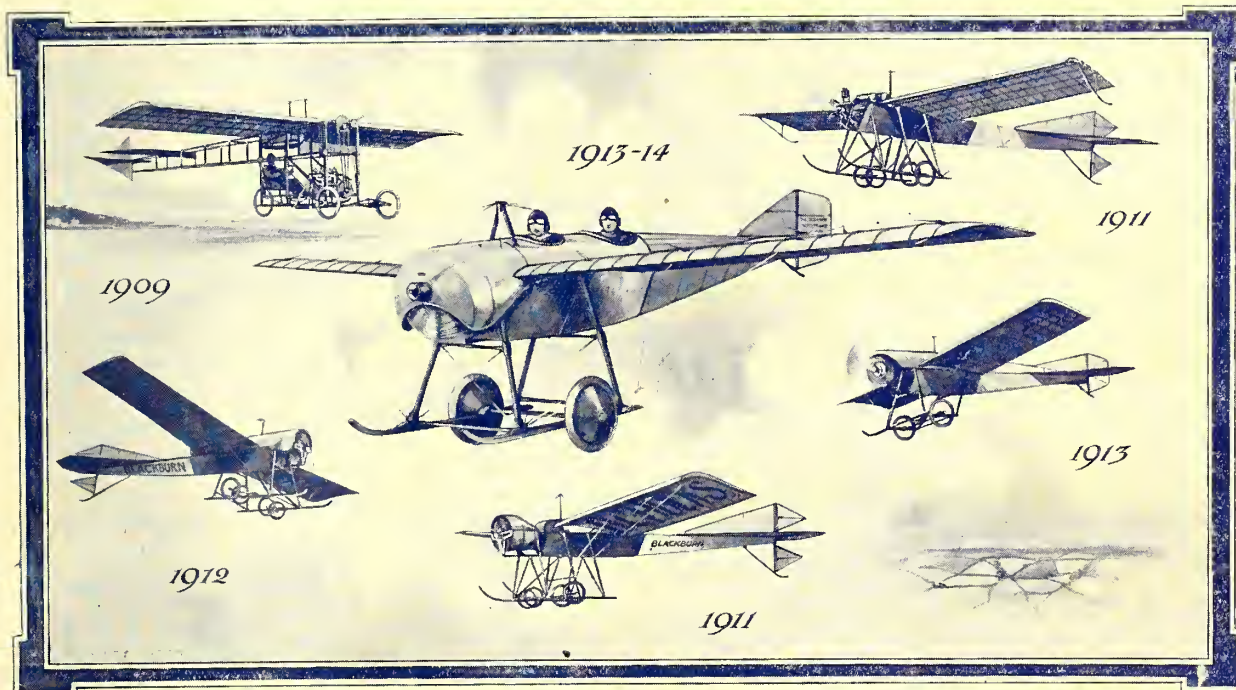
Edited by C. C. Grey

Vol. X. No. 15

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MILESTONES—XXIV



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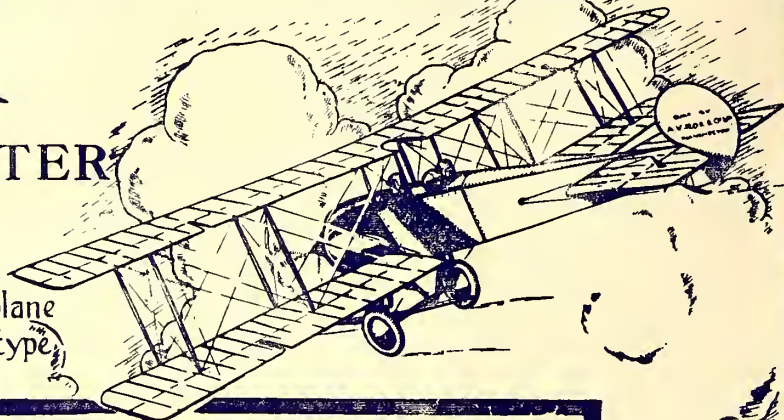
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ON THANKING THE LORDS.

Once more it is made evident how much more valuable in certain ways is the House of Lords to the British Empire than is the House of Commons. The Earl of Derby and the Baron Montagu of Beaulieu have proved by their firm refusal to be victimised by the Cabinet's attempt to use them as a screen for the incapacity of those in control of the Flying Services that the old fighting and governing families of England still remain true to their ancestry and will not be subservient to the political tricks of pettifogging lawyers, hardware merchants or other purveyors of purchasable goods. At any rate, they have shown that their consciences are not purchasable, and that the word "aristocrat" still retains its original meaning.

On a previous occasion I have ventured to hint that the House of Lords has shown more intelligence and honesty than has the House of Commons, and if only all the younger and more vigorous Peers were not leading their countrymen abroad, according to the old tradition of their class, they might quite successfully lead a revolution at home against the present class which has foisted itself upon the people of this country as a Government. At any rate, hereafter no one will be able to sing, with the late Sir W. S. Gilbert:—

"The House of Lords throughout the war
Did nothing in particular,
And did it very well."

If only for the action of two of its members in exposing the sham of the Joint Committee on the Air the House of Lords deserves the Nation's thanks, and one looks to the same House to put our aerial defensive and offensive forces on a proper footing.

The Joint Committee was foredoomed to failure by its very nature. It was, in fact, merely a bit of political eye-wash; whether concocted by politicians inside or outside the Services matters little. It had no executive powers and no one had any power to make the naval or military representatives abide by any decisions at which the Committee as a whole might arrive.

If General Henderson did not choose that the Royal Flying Corps should accept any arrangement suggested and voted by the three Naval representatives there was no power on earth to make the R.F.C. accept it. The question put by the Hon. Member for East Herts a few days after the Committee began to sit, asking whether there was any friction between the Naval and Military members of the Committee, showed better acquaintance with what was going on than did Mr. Tennant's reply that he had no knowledge of any friction.

ARBORICULTURE.

Aerial disturbances frequently cause friction between branches of the same tree, and when each branch is endeavouring to grow and exalt itself the friction increases and is generally bad for the tree. In such case the gardener usually lops off the offending branch. Sometimes a lopped branch is planted to form a new tree on its own account. Sometimes it is thrown into a neighbouring

stream, whence it drifts out to sea, and sometimes it is put in the fire. Certain minor members of one branch have been lopped off and have already gone out to sea. It might be advantageous if greater members followed suit. Similarly certain minor members of another branch have been put under fire on the ground, and a similar ordeal by fire in the case of more important members might be of advantage not only to the branch but to the whole tree.

Doubtless also a general clearing out near the top would not be unwelcome among the junior members of either branch who have suffered in person.

Somehow, A's desire that B should be cleared out and sent "to see the war" at close quarters, so that A can look after B's job, or prevent B from getting A's job, reminds me of a long series of rhymes by which sundry ribald school-boys used to memorise history, Hebrew and otherwise. In these scientific days I suppose such rhymes would be called mnemonics, but we knew their value without troubling about the science of the matter.

The particular verse which the general situation recalls runs thus:—

"David wrote by post to the Captain of the Host,
And said he 'For Bathsheba I have craved,
So put Uriah in the forefront of the fire,
And oblige, Yours faithfully, DAVID.'"

(For Bathsheba read "job," and one is near the facts.)

There is a general tendency to sympathise with Uriah the Hittite, but I always had, even in my extreme youth, a belief that if Uriah had played his cards properly he would never have been sent on active service. He apparently lost not only his job and his life, but an excellent opportunity of using petticoat influence to get him a staff billet. With a little common sense, instead of being a mere casualty he might have been parading Jerusalem in a four-speed chariot and a brass hat, for three years or the duration of the war.

EYEWASH.

That, however, is by the way, and not directly to do with the disjointed Committee. Things aerial have a habit of dissolving into nothingness, so perhaps it was expecting too much to hope for anything else from this affair. One sometimes hears it said of an ill-assorted married couple that "they lead a cat and dog life," in future one may say that "they behave like a Joint-Air-Committee." The thing was bound to be a *fiasco*, and like all *fiascos*, it was full of air. Let us hope that the whole thing may be finally dissolved.

It seems that it was only intended to be eyewash, and the best one can hope is that in dissolving, evaporating, or being wiped away, it may behave like good eyewash by removing the matter from the eyes of the British Public and permitting of clear vision in the future. Which, by-the-way, is just about the last thing the political compounders of the said eyewash would really desire.

LORD MONTAGU'S WORK.

However, by the time these notes appear we shall probably know a great deal more about what is likely to

happen. On Wednesday, THE AEROPLANE's publishing day unfortunately, and therefore too late for report in this issue, Lord Montagu is to speak at Birmingham on the Flying Services generally. I counsel everyone who is interested in aviation to get the "Times" of Thursday, March 13th, and see what he has to say on the matter, for, barring the Member for East Herts, no public man knows as much of the subject as Lord Montagu. Whether he will propound a scheme for an Air Ministry and an Aerial Board of Control or not I cannot say, but any scheme which he does propound is likely to be very sound, and should be considered very carefully before being turned down.

Incidentally, it would be of unusual interest if out of the empty flask of the Joint Committee there should arise—like the geni of the Arabian Nights—the beginning of the Aerial Board of Control prophesied by Mr. Kipling in that inspired vision "With the Night Mail." Anyone who has not read that story should get hold of "Actions and Reactions," the volume in which it is, and study it carefully, not for the sake of the story, but for the astounding prevision of the future state of aeronautics and of the system under which aerial navigation will be controlled.

In the days when the British Empire really commands the Air, as we proudly believe she at present commands the Seas, the Aerial Board of Control will take charge of all commercial aviation as well as naval and military flying. And with all the World at Peace under the Pax Britannica, which will be the Pax Aeronautica, the A.B.C., of which Mr. Kipling writes, may come to its full power as an international body.

THE REFORMER IN HISTORY.

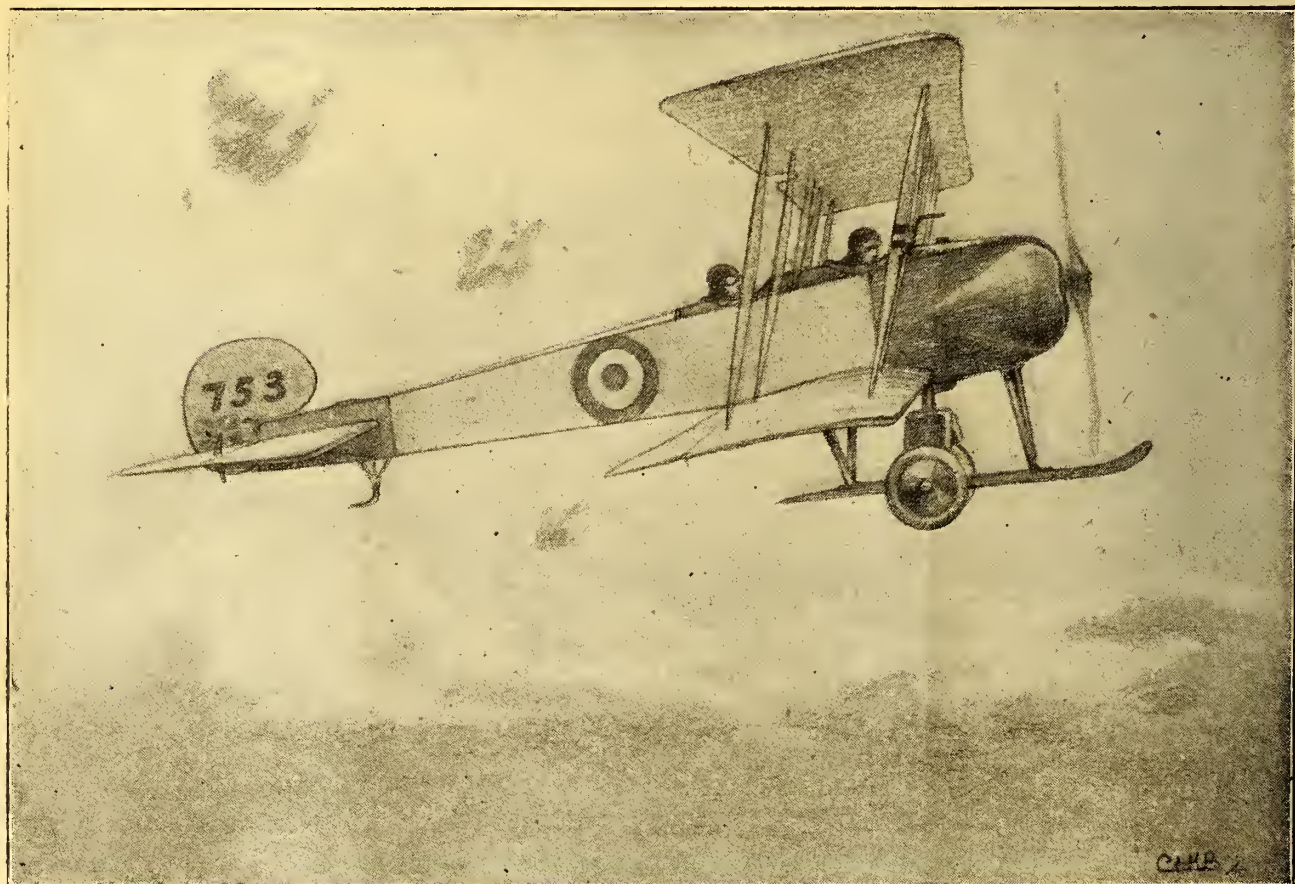
All great reforms, whether religious, social, or mechanical, take place slowly and all follow the same general lines. Quiet, gentlemanly people ask in a quiet, gentlemanly way for reform, and the high authorities pay no

attention whatever. They refuse even to turn in their sleep. Then some wild-eyed fanatic and his followers start on the rampage, break things, burn things, shout "murder, death and destruction," and finally compel the authorities to wake up. Sometimes they hang the fanatics, sometimes they imprison them, always they affect to despise them, and always in their hearts they are afraid of them.

Then the authorities become aware of the quiet, gentlemanly requests which have been unheard hitherto, and they say, "Dear us! What quiet, gentlemanly people these are! So different from those nasty, noisy fanatics. Let us give them what they ask." And so the quiet, gentlemanly people get what they want, and what the people need. But they only get it because of the fanatics.

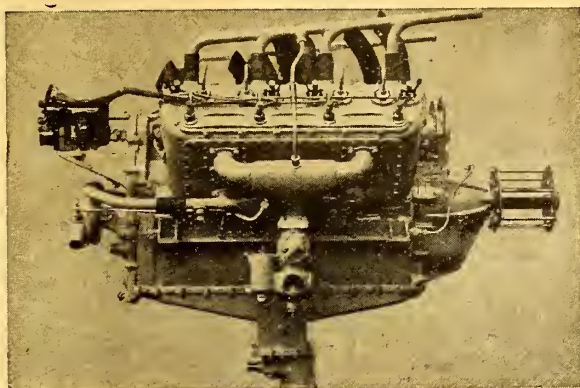
You can see the process in operation in the Reform of the Flying Services to-day. Some twenty or thirty years ago our fanatics in Ireland shot our landlords—or their agents—and Mr. John Redmond, in his quiet, gentlemanly way, asked for and got land reforms which are fifty years ahead of the English system. Earlier still the Chartists burned and rioted in London, and the quiet gentlemen in Parliament passed the Reform Bill. Earlier still the French beheaded their King, and by mistake most of their aristocracy, and a quiet, gentlemanly little officer of artillery built up a reformed French Empire, on which the strength of France and the welfare of Europe still rest to this day.

And far, far back I am perfectly sure that the Twelve Apostles were a confounded nuisance to the conservative Romans and their Hebrew financier hangers-on—as is proved by the fact that they all died violent deaths—but many years afterwards quiet, gentlemanly people about the Court persuaded the Emperor Constantine that Christianity was rather "as done" by the best set, and so he accepted it—with the Holy Roman Empire as a result.



"Full out for Holland."—A sketch by a flying officer interned by engine failure.

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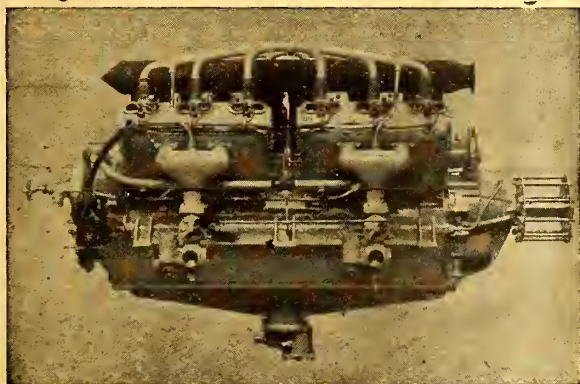
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The fact that Austria, Germany's vassal, is the lineal descendant of the Holy Roman Empire does not affect the argument, it merely shows that, as Mr. Outhwaite, M.P., said in the House of Commons recently, "there is nothing much doing in Christianity at the moment," and there is room for a few more fanatics and a religious revival—which we shall probably see after the war.

THE AIR MINISTER.

Meantime things aeronautical are of more immediate interest at the moment. Therefore I counsel readers to watch the House of Lords as the fount of aerial salvation.

If the appointment has not already been announced when these notes appear, I expect to see Lord Curzon appointed Air Minister.

Lord Curzon is, at any rate, of Cabinet rank, and may be regarded as a statesman. He has not hitherto shown any personal interest in aeronautics, but he is not too old to learn. The worst thing known against him is that in his youth at Oxford he was the subject of the famous verse:—

"My name is George Nathaniel Curzon,
I am a most superior person,
My hair is dark and long and sleek,
I dine at Blenheim twice a week."

His hair is no longer dark and long, and as one cannot grow hair and brains at the same time, one assumes that he has since increased his brain capacity, though even

then he was esteemed clever. He has probably by now forgotten the indiscretion of being friendly with the Churchill family. There remains to him, however, the quality of being a "most superior person"—which, after all, is rather what we want in an Air Minister.

It would certainly be a mistake to put anyone unimportant into such a new office. There are enough *parvenus* in high places without dragging in another.

Lord Curzon, ex-Viceroy of India, is at any rate up to the weight, though how he, ex-Viceroy, will work as Air Minister, in alliance with Lord Kitchener, ex-C.-in-C. India, as present Minister for War, remains to be seen.

If Lord Curzon as Air Minister, and *ipso facto* Chairman of the Aerial Board of Control, is content to take counsel with men who know their subject from end to end and inside-out, and will not let himself believe that he knows anything at all himself, if he will take unto himself advisers like Lord Montagu and various other practical men, and form them into a real Advisory Committee, instead of adopting a mere empty list of "popular scientists" and "experts," like the present so-called Government Advisory Committee for Aeronautics, he may do very great work indeed. At any rate, all those who have the real progress of aviation at heart, and who are not, to quote General Henderson, "axe in hand to the national grindstone"—at Farnborough or elsewhere—will give him their cordial and loyal support.—C. G. G.

ON FLY-BY-NIGHTS.

Official notification of the bombing of a Zeppelin at night by an R.F.C. officer—to whom congratulations—and the disclosure in the House of Commons that sundry officers, unspecified in number, have been killed or injured while flying at night, may be taken as an admission that aerial night patrols are carried on, and also that they have not been organised under the best possible conditions.

It is something like a year since the subject was discussed at considerable length in this paper. In those days the R.N.A.S. was supposed to be responsible for aerial defence of our coasts, and though even then a number of R.N.A.S. officers had studied night flying seriously and at great personal risk, these officers were merely active-service pilots, and there is nothing to show that the mandarins of the Air Department at the Admiralty, as then composed, ever paid any attention to their suggestions, recommendations, or experiments. At any rate, the number of accidents which subsequently occurred to R.N.A.S. officers flying in the dark does not lead one to believe that anything was done.

Nor does it appear that the R.F.C. authorities learned much from R.N.A.S. experiences, which is not perhaps surprising when one remembers how the two Flying Services have locked themselves up in their little watertight compartments.

Even before the war a certain amount of knowledge which might have been turned to valuable account was gained at a mere public show-place called Hendon, where, to make a British night-holiday, sundry brave young men took various grave risks by flying in the dark.

Those who watched the night-flying exhibitions at Hendon might have observed that any open light, allowed to glare in a pilot's eyes, blinded him and confused his landing. Also, that a search-light trained onto the ground assisted him so long as it was not turned onto him before he landed, and was either sideways to him or behind him, and not directly facing him as he touched the ground.

PORTABLE LIGHTS.

This might have suggested that a small portable search-light could be stationed at every aerodrome or temporary

landing ground, and that it could always be moved to the lee side of the ground and pointed to windward, so that a pilot would by the simple process of landing straight along the beam always land head to wind.

It might also have suggested that the whole ground could be kept in darkness, and hidden from enemy aircraft, until a code signal from an aeroplane above indicated that someone wished to land, and that the light should be switched on till he had done so.

Which would certainly have been better than wasting expensive petrol on permanent flares which serve chiefly to dazzle a pilot when landing and to indicate to enemy aircraft the precise whereabouts of the landing ground. The amount of petrol wasted in these flares at any one aerodrome in the course of one night would drive portable electric light sets enough to run a couple of dozen big searchlights.

It may be argued that if there were no permanent lights there would be nothing to indicate to a pilot the whereabouts of a landing ground. That is very simply got over by arranging for a sufficiency of landing grounds in the defended areas, and ordering that each aerodrome shall have two men constantly watching the sky for landing signals from aloft.

ADEQUATE LANDING GROUNDS.

The grounds should be not more than ten miles apart in any direction, so that a pilot could never be more than five miles from a landing place, for then he would always be able to glide in somewhere from anything over 8,000 feet.

Every aerodrome which picked up his landing signal would light up till it was notified that he had arrived at one of them. For naturally each ground would be linked by direct telephone to the others. In this way each ground would be also a "listening post" for enemy aircraft, and in direct communication with headquarters of the O.C. Air Defences, so that any message concerning the machine which had landed would go to H.Q. at once.

The scheme of linked landing grounds seems elaborate, but the grounds could be got on loan for nothing from patriotic landowners, and the price of half the machines



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which have been unnecessarily crashed would have paid for all the electric lighting and telephone system.

Presumably the chief crab to the scheme is that it is much too cheap and simple to appeal to the official mind.

A GERMAN SCHEME.

Long before the war the Germans were studying night flying with their usual thoroughness, and herewith is illustrated a landing-indicator invented by Herr Honig, of Berlin. His idea was to have two rings of small incandescent lights concentrically one behind the other, one small and one large, the smaller one being behind. Presumably the bigger ring would be about 10 feet in diameter, and the smaller one five. The centre of the rings would be at such a height that when an aeroplane of ordinary size was in the proper line and on the point of switching off for landing, the rings would appear concentric, as shown in the right-hand bottom corner of the diagram. Any deviation from the correct landing position would at once be seen by the pilot.

When the machine was on the correct line and still high up the rings would appear as two separate ellipses—as seen in the left top corner. When at landing level, but wide to the left, they would appear as in the right top corner. In the left bottom corner is shown the appearance of the rings when the machine is nearly down but a trifle to the left. In the centre is the view when on correct line and near the ground.

The idea is good, for these could be mounted as a unit complete with generator and wheeled from place to place on the ground according to the direction of the wind.

Another simple idea was suggested ever so long ago by

Mr. Pemberton-Billing. His notion was to have simply two electric-light cables running

from a portable lighting set, or from a town supply if available. On one cable would be red lights at frequent intervals, and on the other green lights. At night the cables would be laid out on the ground sufficiently wide apart to allow of a machine landing between them. Thus they would make a lane of light bright enough to be seen, but not bright enough to dazzle the pilot. The lane would be laid up wind, and could be easily shifted if the wind shifted, and the red and green would be arranged so that an aeroplane coming in, on the old sea rule of

"Green to green and red to red;

All is clear, so go ahead,"

would be head to wind and sure of a safe landing.

If anything, the notion is simpler and cheaper than the German ring idea, though it would be necessary to have supplementary white lights, owing to the difficulty of seeing the red and green lights from any considerable height.

As in the other schemes, these lights would only be turned on when wanted.

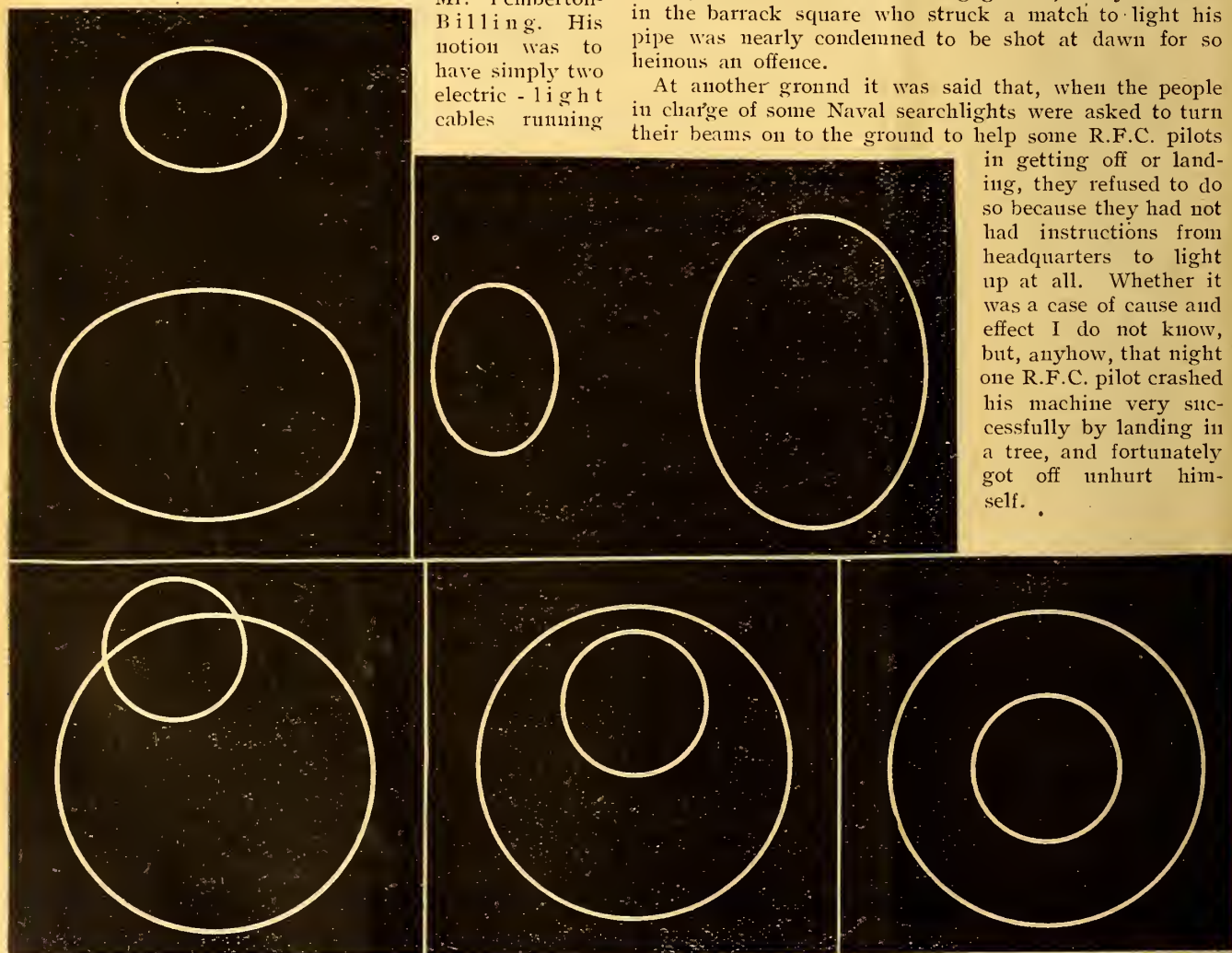
THE HUMAN INTELLIGENCE.

Now, any of these schemes are better than petrol flares, yet one has not heard of them being used, though they must have been known to the authorities long enough before the war; or if they have not, then the authorities are very much to blame.

A young friend of mine in an infantry battalion told me the other day that at a certain landing ground close to his barracks one dark night flares were going all night to indicate the landing ground, and yet a man in the barrack square who struck a match to light his pipe was nearly condemned to be shot at dawn for so heinous an offence.

At another ground it was said that, when the people in charge of some Naval searchlights were asked to turn their beams on to the ground to help some R.F.C. pilots

in getting off or landing, they refused to do so because they had not had instructions from headquarters to light up at all. Whether it was a case of cause and effect I do not know, but, anyhow, that night one R.F.C. pilot crashed his machine very successfully by landing in a tree, and fortunately got off unhurt himself.



A German night-landing device, indicating to the pilot whether and when he is in the right place to make a landing. The operation of the scheme is described in the accompanying article.



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FOG.

Another little matter worth investigating is the question of lights on foggy nights. Everyone knows that, though one can see out of a ground fog into a bright starry sky, one cannot see a yard into a fog if a light is shining on to it, and I gather that, on a bright, still night, a ground fog, looked at from above, seems like a white lake, owing to the starlight shining on it.

Naturally, landing blind in a fog like that is simple suicide, and—*pace* Mr. Tennant—it is murder to send a man up in a ground fog. Flares on the ground, or searchlight beams, only make matters worse.

Readers of Mr. Kipling's "With the Night Mail"—as already recommended—will recall his reference to "fog-piercers," and I gather from scientific friends that fog-piercing lights are already known.

Even some motor-lamp people found some time ago that gilt reflectors do not blind one in a fog as do silver reflectors. And I remember an old horse-bus driver, some twenty-five years ago, demonstrating to me how, by reversing his lamps and making them shine backwards and onwards, instead of forwards, he got a reflected light off the fog behind him thrown into the fog in front, which light penetrated the particles of moisture, or got round them somehow, and lighted up the road in front without dazzling.

All of which seems to indicate that, if some of our practical scientists were asked to assist in this matter, it might be possible to land safely even in a fog.

SIMPLE SAFETY MEASURES.

Apart from fog-penetrating lights, there are only two ways of giving a night-patrol a chance on a foggy night.

The first is to give him a reliable engine or engines which will ensure his being able to fly on till daylight.

Such engines can be procured if the authorities will go the right way to work about getting them, instead of leaving the engine problem in the hands of a lot of juvenile amateurs and senile professors.

The second is to give him a machine which will glide so slowly that, if he hits anything, he is not likely to be killed. It is quite possible to make a machine which is inherently stable when required, and absolutely controllable when required. Such a machine can be adjusted to glide uncontrolled at 35 miles an hour, and, if a pilot of such a machine has an engine failure and is forced to land in a fog, he should never suffer anything worse than a bad shaking.

TO PREVENT FIRES.

Several forced landings at night have been followed by fires. Such fires should be made impossible by the very simple process of fitting all petrol tanks with emergency drain-taps, which will empty the tanks in a few seconds, so that, if a machine smashes up on landing, there will be no petrol there to catch light. There is absolutely no excuse for neglecting such a very simple precaution.

These few notes merely touch the fringe of the question of night-flying, but I trust they will suggest to some of the recently joined junior officers and some of the still more recently appointed commanding officers in the Flying Services, who, having just left a Service flying school, naturally know all there is to know about flying—and a bit over—that there are a few phases of the question which are worthy of quite serious consideration.

Further, I submit to the higher authorities that war is not merely a competition between nations to see which can expend the greatest amount of money and the greatest number of men in a given time, but that war is a first-class science to which all other sciences—among them the science of political economy—are handmaids.—C. G. G.

AIRCRAFT IN THE HOUSE.

The following dialogue took place at Question Time on April 4th:—

Mr. Pemberton-Billing (by Private Notice) asked the Under-Secretary of State for War whether, in view of the public dissatisfaction at the existing methods of air defence, as revealed in the last three raids over a wide area of Great Britain, the right hon. Gentleman is now prepared to give consideration to the proposal for effective defence submitted to the authorities in the early days of this War by the hon. Member for East Herts?

Mr. Tennant: I had notice also from the hon. Member for Brentford (Mr. Joynson-Hicks) asking me whether we could state who was responsible for bringing down the Zeppelin L 15. It is not possible to be certain to whom the credit is due for bringing down the Zeppelin. Several hits are believed to have been made, and those by different batteries. The new arrangements for the defence of London and munition factories in and around London have proved very successful. More than one attack has been driven off the Metropolis without the inhabitants becoming aware of it.

Mr. Pemberton-Billing: Arising out of that answer, I ask that my question should be answered.

Mr. Tennant: I have already promised an inquiry into the hon. Gentleman's allegations, and that inquiry will be held.

Mr. Pemberton-Billing: That is not an answer to my question. In view of the intensely unsatisfactory answer—

Mr. Speaker: I do not know what steps the hon. Gentleman took to inform the War Office that he was going to ask these questions, but they were only put into my hands about twenty minutes past three.

Mr. Tennant: May I say that the hon. Gentleman's question was put into my hands after I arrived at the House?

Mr. Hogge: Is the hon. Member for East Herts not entitled to give notice now, as he desires to do, that he will raise this question on the Adjournment to-night?

Mr. Speaker: I beg pardon. I did not understand that was the purpose for which he rose. I understood that he was pressing for a reply to a question which had not been received by the War Office.

Mr. Hogge: I heard the hon. Gentleman say, "On account of the intensely unsatisfactory nature of the reply."

Mr. Speaker: He got no reply.

Mr. Hogge: Is not that very unsatisfactory?

Mr. Speaker: That depends.

Mr. Pemberton-Billing: I propose to raise this matter on the Adjournment of the House to-night.

At the end of the debate **Mr. Deputy-Speaker**, pursuant to the Order of the House of February 21st, proposed the Question, "That this House do now adjourn," whereupon **Mr. Pemberton-Billing** said: In view of the exceedingly limited time at my disposal, I propose to raise this question on the Adjournment of the House to-morrow."

At Question Time on April 5th the following dialogue occurred.

Mr. Hogge asked the Under-Secretary of State for War, as representing the Interdepartmental Committee on Aeronautics, whether an application has been made by Messrs. Mann and Grimmer to complete the M2 fighting machine; whether it is being granted; and what steps he proposes to take to prevent the loss of a valuable experiment?

Mr. Tennant: The Mann and Grimmer aeroplane M2 has been brought to the notice of the War Office. The first machine was to have been tried by the War Office, but was smashed before it could be submitted. Messrs. Mann and Grimmer then applied for financial assistance to build another aeroplane; designs were asked for in order that the merits of the machine might be considered. These have just been received and are now under consideration.

Mr. Hogge: Is my right hon. Friend aware that this firm will have to close down almost immediately unless they get this financial assistance?

Mr. Tennant: I was not aware of that fact. Of course, that will be taken into consideration; it may be good or it may be bad.

Mr. Lynch: Is it not in the public interest to foster a firm, the members of which have shown considerable inventive genius and great technical skill? Should not the Government, instead of dealing with them in an off-hand way, rather take them up and foster their business?

Mr. Tennant: The hon. Gentleman informs me that this firm have shown all this extraordinary skill and genius: that surely is a thing that has to be proved? If the facts are as he believes, no doubt financial assistance may be given.

Mr. Cowan: Are Messrs. Mann and Grimmer a German firm?

Mr. Tennant: I do not know. Possibly the hon. Gentleman (Mr. Hogge) may be able to give my hon. Friend the desired information.

Mr. Hogge: Is the right hon. Gentleman aware that £1,000

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would complete this experiment, and does he not think that the War Office might act in the interests of the Air-Service?

Mr. Tennant: I am obliged to my hon. Friend for the information.

[It is to be regretted that Mr. Hogge and Dr. Lynch did not make further enquiries into the military value of the machine in question and into the output capacity of the firm before taking up the time of the House on the matter.—Ed.]

Mr. Brookes asked the First Lord of the Admiralty if his Department has considered the propriety of housing the administrative offices of the Royal Flying Corps and the Royal Naval Air Service under one roof, so as to ensure centralisation and unification; and whether he will in that case inform the House of the decision which has been reached?

Dr. Macnamara: I entirely agree with the implication in my hon. Friend's question, that close co-operation and interchange of ideas between the Navy and Army Air Services are essential. Whether the suggested method of obtaining them is desirable or not is a matter for consideration.

Commander Bellairs: Is it the case that even the Royal Naval Air Service is not housed at present under one roof, and will the Admiralty facilitate them being put under one roof?

Dr. Macnamara: That is not the question on the Paper, but I will look into the matter.

ANOTHER AIR DEBATE.

On the Motion for Adjournment on April 5th **Mr. Pemberton-Billing** said: With reference to the question that I put to the Under-Secretary for War having regard to the defences of this country against aircraft raids, I regret to see that the right hon. Gentleman is not in his place. Had he been present I would like to have congratulated him upon having now an opportunity of making his statement so soon after the devastating raids which covered a very considerable area of our Island. I would like to suggest, in the words of Abraham Lincoln, that it is possible to fool some men for all time, all men for some time, but not all men for all time.

I think I am echoing the opinion of a very considerable majority of the voters of this country when I say that they are not satisfied with our Air Services, that they are not satisfied with the defence—or, rather, shall I say, the lack of defence—which is in being. This country has been at war now with Germany for twenty months or more, and the raids we are now experiencing are quite reasonable to expect. Our enemies have threatened on many occasions to do certain actions and on very few occasions have they disappointed us or failed to carry out the threats which they made. I consider that our country is right in demanding that it should have some other form of defence than a few, I regret to say, misplaced guns, a few aeroplanes which are totally unfit for the work which they are expected to carry out in darkness, and a request that the citizens will remain quiet.

We are told that we must take this affront to our national dignity and this blow at our national life with calmness. It has, of course, been suggested that the men in the trenches are suffering even more greatly than we are here. I would suggest that is a very poor argument. We must remember that the men in the trenches have what might be called the "blood lust" to support them. They have that very definite feeling of their ability to be able to strike back and to kill in return for those of their comrades who are killed and to wound or kill in return for their own probable death or suffering. I think, to use a colloquialism, that tees them up in a way no ordinary citizen can be teed up, when he simply walks about the streets of our cities waiting and hoping that the next bomb will not include him among the victims.

I would like to read an extract from a letter with reference to a gun which is situated, I would not like to say where, but in a place which might be looked upon as the last line of defence before London. On the night in question, Sunday, April 2nd, when a raid of some magnitude took place, this is what actually happened at that gun, which is a very useful anti-aircraft gun—I have seen it—a gun which, had it been used, would most probably have been effectively used:

"The officer on duty stated that he received no official warning of the raid. He was telephoned to by the local station master who told him that 'traffic was stopped.' Later the station master telephoned him and stated that aircraft was some thirty miles distant. He later heard the Zeppelin and saw it clearly with his own glasses. The Zeppelin was within easy range when sighted on the return journey, having crossed in the same direction previously. When sighted it was within easy range and was a clear shot, but the gun layers could not pick it up as the searchlight was not showing. The officer afterwards telephoned the War Office, who could not understand why he had not been warned and who referred him to his control. He telephoned there, and they expressed astonishment that he had not been warned."

The only official message that officer received throughout the whole of that raid was on the following morning early when he received a telephone message indicating that the coast was clear. The coast was clear. Yes, but for the Zeppelin.

I should be glad if the Under-Secretary of State for War would kindly advise this House as to what discretion is left to these officers. Is it absolutely necessary for a German airship to make

a landing before it can be shot at? If the crew of a German Zeppelin lands, approaches one of our anti-aircraft defences, and takes forcible possession of it, has the officer any discretion? Will he not be allowed to fire a gun or raise a hand in defence of our country?

When once a Zeppelin has crossed the coast the actual defence of the country is handed over automatically into the hands of the military. There is the moment before the Zeppelin crosses the coast, there is the psychological moment when it is actually crossing, and then when it has crossed the defence of the country is in the hands of the military. On the night of one of the raids in question the following occurred:

"On Friday night I intercepted a Zeppelin"—this is an extract from a letter from a certain commander in the North Sea—"flying in." That is, towards our coast.

"We had an engagement lasting thirty-five minutes. He bombed me, then put his machine gun on to me. He then bombed me again. He tried very hard, but ultimately flew on his journey"—to our country—

"I almost wept because I had no night-sights on my pop-gun." The gun in question was a 3-pounder. Had that officer been suitably equipped he might have accounted for one Zeppelin. He might not only have accounted for one Zeppelin, but he might have saved lives and property.

I would like to ask the following questions: Whether the trawlers and drifters engaged in patrol work in No. 1 District waters frequented by Zeppelins are fitted with wireless? Whether the trawlers and drifters engaged in that patrol work are fitted or armed with guns capable of engaging Zeppelins? Whether such guns as may be fitted in these trawlers and drifters are fitted with night sights? A night sight is necessary for attacking a Zeppelin, which has to cross and recross the district where these boats are stationed. Who is the officer on the East Coast responsible for the condition of the trawlers and drifters engaged in patrol work in No. 1 District? Has the said officer reported that such trawlers and drifters in this district are properly armed and equipped? If so, has the Admiralty taken any steps to check by inspection the accuracy of that report? Who is the officer responsible for the inspection of trawlers and drifters engaged in patrol work in No. 1 District, and when did he last inspect them? Did he or the senior naval officer at Yarmouth report that these vessels were efficient and fit for action? Are the trawlers and drifters in No. 1 Patrol District supplied by the Admiralty with navigating instruments, and, if not, why not?

Those are a few of the most important points which affect the lives and well-being of men who are daily and nightly suffering, in some cases even more than the men in the trenches suffer—men suffering all the discomfort of knocking about the North Sea in a bit of a boat.

I trust that the right hon. Gentleman will be able to prove that it is not true, but if these men, among whom are some of our bravest defenders, have no suitable instruments for navigation, if they have no guns with which to protect our coasts, and if they have no proper night sights, why are they called upon to suffer this discomfiture? Is this another piece of eye-wash? Is this another public scandal? So long as the public can be hoaxed without our fellow countrymen suffering there may, perhaps, be justification. Personally, I doubt it; but if we have to make martyrs of our fellow countrymen in order to produce eye-wash for our Government, then I suggest we are carrying the joke a little too far. I trust the right hon. Gentleman will have an opportunity of replying to my remarks. I would suggest that the weakness of the defence which has been put up against every statement I have made in this House is the best argument that the House could have in support of the policy which I advocate.

A new system of defence is absolutely of vital importance to this country. But I made certain statements in this House a few days ago, and . . . I tell the House the statement I then made was far below what I actually saw with my own eyes. . . This sort of panic must be stopped. This sort of indiscriminate warning, when everybody seems to be warned but the one person who can defend us, when everybody seems to be aware that Zeppelins are coming but the one man who stands at the gun—I ask that these things shall cease, and I ask also that this House shall have, if necessary, a special and very early opportunity for the discussion of this question of our air defences, with a view of getting them put right. It is useless to suggest that the enemy are not equally aware of what goes on in our midst. I believe that they are better informed than even right hon. Gentlemen on the Front Bench. I would ask that we have no further hatching of excuses.

All this reminds me of a man suffering from some blood irritation which causes sores to break out, and then the doctors, instead of treating him properly, try to hide the result by placing plaster over the running sores.

I would ask if certain types of seaplanes which are absolutely useless and unused in their present state can be adapted, as one has already been adapted, owing to recent remarks in this House, and most successfully adapted. A seaplane which had on it heavy floats approximating in weight from 500 to 1,000 lbs., very strongly built for its peculiar work on rough water, was converted into an aeroplane by having its floats cut off and wheels



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put on. The result was that this machine succeeded in leaving the ground in a remarkably short space, it lifted six flours' fuel and nearly 800 lbs. of explosive, and it has a speed of 80 miles an hour. That means a range of 480 miles with 800 lbs. weight of T N T, which, if it were dropped where it ought to be dropped, where it ought to have been dropped months or years ago, would have a very useful influence in stopping the present irritating raids of aircraft upon our country.

There exist in this country at the present moment not one, but I would dare say 100 machines, lying about our coast towns, useless as seaplanes because of the immense weight of their floats. They are bound to put up with a certain amount of buffeting by the sea, but they are not much used, and their efficiency is rapidly declining. When used after two or three days they become incapable of leaving the water, and the boats to which they are attached. I suggest that these seaplanes are of no kind of utility in this War. We sent three of them on a recent journey, but owing to the disgraceful condition in which they had been kept they dropped down into the sea, never having reached their objective. I say that these machines in this country are all useless, but if we deprive them of their floats and fit them so that they will be able to carry, in lieu of the dead weight of those useless floats, 800 lbs. to 1,000 lbs. of useful explosives, they will be able to deliver the goods right in the very place where our enemy are building these night menaces, these airships which are causing so much distress and so much unhealthy excitement throughout the entire country.

I trust some steps will be taken immediately. I hope the Government will not adopt the usual methods which I find so common in the Department to try an experiment, and if it is a failure to say nothing can be done, while if it is a success to be so overcome by their feelings of joy as to forget why they conducted the experiment, and what to do now it has proved a success.

I suggest, and I do it with great diffidence and with a full sense of what I am saying, that if no one can organise these raids, if no one can see their way to strike back immediately with force and decision, then I will ask leave from this House, and ask to be allowed to organise such raids, and, if necessary, to lead them. I say that with a full sense of responsibility. If I am provided with material, both human and otherwise, which is already lying round this coast, serving no useful purpose, while involving great national expense, I think I can suggest a way whereby we may bag as many Zeppelins on one day as we have done in a year of work with misplaced guns, misplaced confidence, and aeroplanes which are not fit for their work.

[As the originator and organiser of the successful raid on Friedrichshafen in 1914 Mr. Pemberton-Billing's offer is no empty boast.]

My methods in this House are not, I believe, quite what are expected of a politician. The public are not looking to me to be a politician; they are looking to me not because I have claimed all that my critics say that I have claimed, but because I have claimed to know something about the job for which I came to this House. They are looking to me not so much to criticise the Government as to offer them some way out and some definite proposals. I ask the Government to give me the opportunity of offering them those proposals—not across the floor of this House—and to listen to me not with the hope that I shall say something upon which they may trip me up, but with the hope that I may say something which they can use and which may be of service to the country.

It is quite feasible that a great deal of what I have to say, and to say in private, could be turned to good account by the Government. I only trust that when the occasion arises they will give me that opportunity. If I may quote from a journal which is not a stranger to this House—I refer to "Punch"—I see that they accuse the Government, after the last two or three weeks of the air, in the following terms Mr. "Punch" said:

"I feel the Government have their heads rather than their hearts in the air."

Mr. Tickler: I wish to associate myself with the appeal which the hon. Member (Mr. Pemberton-Billing) has made that some means may be taken to protect the inhabitants of the East and the North-East Coast and the towns there against these air raids. I have had occasion to visit some of these towns, and have witnessed some of the damage that has been done.

As I go about I am continually asked what the Government are doing to defend these places. I very much regret to say that I cannot point to one thing.

The people feel that they are totally unprotected. They also feel and are saying that the Government are doing nothing, and are doing it well.

The Under-Secretary of State for War (Mr. Tennant): What the House and the country really want from the War Office are more deeds than words. I do not think the hon. Member for East Herts will dispute that point. I should like, if I can, to convince the House that the Government have been taking very active steps, and do not require to be spurred in the least by speeches in this House. There is really no necessity for it whatsoever.

[The curious thing is that the Government never accelerates except under the spur of agitation.]

Hon. Members, such as the hon. Gentleman who has just sat down, seem to think that the Government are doing nothing. Anything really more absurd than that it would be difficult to imagine. I do not know how to begin to convince the hon. Gentleman who is so lamentably ignorant of the facts as to make assertions of that kind. I should have thought that anyone who watched the proceedings during the last weeks would have come to a very different conclusion. I have announced in this House, I think it was yesterday, that more than one raid upon London was beaten off without the inhabitants becoming in the least aware of the fact and without any of the inhabitants of the Metropolis knowing that the attacks had been launched against it. That is very significant.

[It would be if anyone believed it, and if they were convinced that the raiders were not "beaten off" by change of wind, or fog.]

Surely it is not necessary for me to say that it is not possible to prevent air raids coming to any one place in the United Kingdom. I hope that the time may come when we shall be able to meet the attacking ship or aeroplane very shortly after it has arrived. To say that it never shall be able to arrive here at all is to say what is impossible.

[A proper system of coast defence would make it very nearly impossible.]

I think I may be allowed to inform the House that not only was the Zeppelin L15 beaten down into the estuary of the Thames, but another Zeppelin was hit somewhere off the coast of this country. I do not think it is proper to give the place. We have the knowledge of that fact from a message which was discovered—a wireless message sent by the commander of the ship, which was not picked up in the ordinary sense by another wireless apparatus, but was actually picked up off the ground—it was a carbon copy of the message sent. That is news for the House and good news so far as it goes.

[Assuming that it was not a German joke.]

I welcome the offer which the hon. Member (Mr. Billing) made to the Government. I shall certainly not neglect it, and I hope to be able to claim his co-operation and assistance in what must be the desire and hope of us all to be able to deal more effectively than we have done in the past with these air raids. I shall make it my business to ascertain in what manner he thinks he can best assist us and shall make the greatest possible use of the services which he will put at our disposal.

We sympathise most sincerely and earnestly with those unfortunate persons who have lost their relatives by these air raids. We desire to offer to them our cordial sympathy and to say to the population of those towns which have been raided that we are taking every step which can be taken within the limits at our disposal and that we have established a very considerable machine which is much larger and wider than many hon. Members know of, or will readily believe in till they have become actually aware of its ramifications.

[We have heard all this before, even in Colonel Seely's days.]

The Parliamentary Secretary to the Admiralty (Dr. Macnamara): Let me state again, broadly, the duties of the two Departments in this matter of dealing with hostile air attack. I think the House knows that the Navy undertakes to deal with all hostile aircraft attempting to reach this country, and the Army undertakes to deal with all such craft which reach these shores. All defence arrangements on land are undertaken by the Army Council, which also provides, of course, the aeroplanes required to work with the Home Defence troops, and to protect garrisons at vulnerable points, and the flying stations required to enable their aircraft to undertake those duties.

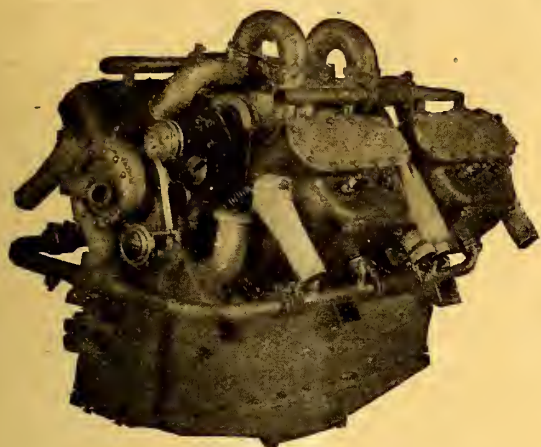
The Admiralty undertake to provide the aircraft to co-operate with and assist the Fleet and the coast patrol flotillas. We undertake to watch the coasts and to organise and maintain such flying stations as are required to enable naval aircraft to undertake their duties and, of course, the two Services co-operate to prevent unnecessary duplication. In that short statement I have endeavoured to set out clearly what are the duties of these Departments.

[And small credit to either of them, even judging by public results alone. When one knows more of the inside of things one feels still less pleased.]

My hon. Friend put a number of questions—I do not complain that I had no notice, though I wish I had—as to the equipment of craft in the North Sea. On this and on other matters, however, I do not intend to state publicly how all this equipment stands—not under any circumstances. What I will do is sit down with my hon. Friend on each point as to equipment and see exactly how the matter stands.

My hon. Friend made certain comments on the inefficiency of seaplanes. I am not an expert constructor of aeroplanes or seaplanes. I am not even a flying man, and I can only rely upon the expert advice that is given to me. My hon. Friend does not think much of the seaplanes. I will take care that his view on seaplanes shall be communicated to those who are experts and who are fully able to say what the criticisms are worth and the weight which ought to be attached to them.

[If Dr. Macnamara consults active-service pilots, and not the Admiralty "experts" who are responsible for all the present ineffectiveness, he will be somewhat startled.]



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He referred to raids. I think he might have mentioned the very fine raid which we made the other day at Zeebrugge.

[With many French and Belgian pilots and nearly all French machines.]

I do think on behalf of the gallant men who took part in that raid and the effect which that raid had, there might be some little mention of it.

The hon. Member appeals for hearing for his case. He knows that every hearing will be given for his case—in fact, he has had evidence of that.

With regard to his offer of assistance, all I can say is that if any man can assist us in any way to meet this menace we shall be most ready to accept it, and we shall be grateful for any contribution he may be able to make.

[Dr. Macnamara is perfectly honest in his intentions, but he is dependent on the Admiralty "experts," who, to save their own faces, must perforce turn down any scheme which is better than their own.]

MORE QUESTIONS.

At Question Time on April 6th Mr. Bennett-Goldney asked the Prime Minister if there has been and if there is still any overlapping, preventable delay, or extravagance with regard to the purchase, supply, and manufacture of aeroplanes, seaplanes, other aircraft, and their accessories owing to the Munitions Ministry still being left without similar control in these matters as that which it now holds with regard to guns and other vital munitions of war; if separate design and contract departments are still run either by the Admiralty or the War Office or both, altogether, apart from the Ministry of Munitions; and, if so, whether he can say when adequate steps will be taken to place all the business connected with the supply of aircraft, their materials and accessories, under the direction of the Ministry of Munitions so as to ensure greater efficiency, speed, and economy both in construction and output?

The Prime Minister: The whole question of the manufacture, supply and distribution of aircraft, and their accessories, for the Naval and Military Air Service is being investigated by the Joint War Air Committee. The point raised in the question can be more satisfactorily dealt with when I am in possession of the Committee's recommendations.

Mr. Pemberton-Billing: Are there any resignations pending which are likely to affect the decision of this Committee?

The Prime Minister: I should like notice of that question.

Mr. Pemberton-Billing asked the First Lord of the Admiralty whether the suggestions put forward for the immediate adaptation for offensive action of certain types of seaplanes at present unemployable will now be adopted, in view of the necessity of striking an immediate blow in aerial offensive against the Zeppelin bases of the enemy?

The Parliamentary Secretary to the Admiralty (Dr. Macnamara): I do not think it desirable in the public interest to answer questions about future naval operations.

Mr. Pemberton-Billing asked the First Lord of the Admiralty whether he has received any information of a more detailed character than that appearing in the Press to the effect that two of the three British seaplanes captured in the raid on the Zeppelin station in Schleswig were forced to land owing to engine trouble; and has he any information as to why the third seaplane, which was captured at sea, was unable to reach the coast?

Dr. Macnamara: Naturally, we have no information from the seaplanes in question. For the rest, my hon. Friend has access, in common with all of us, to the statements which the enemy has published or allowed to be published.

Mr. Pemberton-Billing: Is this country, then, to rely for information solely on enemy reports?

Dr. Macnamara: This is obviously a case where the information asked for cannot be given.

Mr. Pemberton-Billing asked the First Lord of the Admiralty whether, having regard to the admitted urgency of producing engines of proved efficiency for aircraft, he can inform the House what negotiations have taken place for the purpose of securing the rights of construction in this country of a famous Barcelona engine; whether the offer of a well-known British engineering

firm to manufacture and supply these engines has been refused, and for what reason?

Dr. Macnamara: I am afraid I cannot undertake publicly to give particulars respecting the provision of warlike material. If my hon. Friend desires to be supplied with any facts for his own private information in regard to this and similar matters, I shall be very glad to give his request every consideration.

Mr. Annan Bryce asked the Under-Secretary of State for War whether the General Officer Commanding the South Eastern District has power to give direct orders to the aerodromes within his district for the ascent of aeroplanes, or whether he can only communicate these orders through the War Office?

Mr. Tennant: As I have stated, I cannot give any information as to the system of command or communication adopted for this purpose, but I may say that the assumption underlying this question and others which have been put, that leave has to be obtained from London before an aeroplane may ascend, is incorrect.

Mr. Joynson-Hicks asked the Under-Secretary of State for War how many men are now employed in the Royal Aircraft Factory; and what is the wage bill per week?

Mr. Forster: The total number of men employed in the Royal Aircraft Factory is 3,223, and their weekly pay amounts to £9,438.

Mr. Joynson-Hicks asked what are the salaries paid to the five senior officers of the Royal Aircraft Factory; and what were their salaries prior to the commencement of the war?

Mr. Forster: The salaries actually being paid in the period immediately preceding the war were £1,500 (part time), £500, £400, £350, and £350. The salaries being paid now are £3,000 (full time), £630, £550, £550, and £450.

[It will be remembered that this paper stated last week that Lieut.-Col. O'Gorman now receives £3,000 per annum for running an experimental shop. He is to be congratulated on his valuation.]

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether he has made inquiries and satisfied himself of the truth of the allegations respecting a dummy gun erected on the roof of a foundry in an East Coast city; has he discovered the name of the firm on whose premises the gun was set up; has he been informed of the material used in its manufacture; does he know where it was made; can he inform the House when it was removed and where it was burnt; can he give the number of soldiers who were told off to guard the gun during the time it was employed by the military; who was responsible for this hoax; and can he give the assurance that such a practice will not be repeated?

Mr. Tennant: The hon. Gentleman has presumably in the course of his experience heard of *ruses de guerre*. The object of such measures is to deceive the enemy, and if such a measure has been resorted to in this country its object would be to mislead the enemy's air scouts or agents, and not to hoax the civil population. Perhaps the hon. Gentleman will permit me to say that it is not always in the interests of the country to tear aside the veil.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether, on the occasion of last Sunday's raid, a Zeppelin passed on two occasions within easy range of an anti-aircraft gun stationed in an Eastern county; if so, why was the gun not fired; why was no official warning given to the officer in command; and whether an officer is left without any discretion as to when he shall fire?

Mr. Tennant: As there are no orders extant which might cause the officer in charge of an anti-aircraft gun to act in such a way, and as the answer to the last part of the question is in the negative, there is no ground for supposing that anything of the kind occurred.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether friction has arisen among the members of the Joint War Air Committee recently appointed by the Government; whether the disputes and delays which have resulted have arrested all hope of progress; and whether any members of the Committee have declared to their colleagues their intention to resign?

Mr. Tennant: There are, of course, differences of opinion, but no friction whatever exists between members of the Joint Air Committee.

THE DIS-JOINT COMMITTEE.

The following paragraph appeared on Tuesday, April 11th, in the "Morning Post":—

"We understand that Lord Montagu of Beaulieu has resigned his position on the Joint Air Committee, and that his resignation has been accepted by the Government. The Earl of Derby having gone, the Air Committee has to all intents and purposes ceased to exist."

The leading article in this issue of THE AEROPLANE was written three days earlier, with some knowledge of what was happening behind the scenes. The only doubt was whether Mr. Asquith would refuse to accept the resignations of Lord Derby and Lord Montagu, and would succeed in persuading them to "wait and see," or would give the Committee a little executive authority.

What has actually happened is by far the best thing that could have happened. Lord Derby has, by his act, shown his lack of

confidence in the utility of the Committee, and Lord Montagu, who really understands his subject, has in effect expressed his lack of confidence in the Government—which sentiment is shared cordially by all those who have intimate knowledge of aeronautical affairs and by all officers in both Flying Services, except those who have their own axes to grind.

These timely resignations now leave Lord Montagu free to speak his mind at Birmingham on Wednesday—the day on which these notes appear—and one hopes that he will speak with no uncertain voice, but will tell the people of England just what is wrong and just what is needed. He is subject to no censorship beyond his own conscience, and being an experienced soldier he has a better knowledge of what may be said without giving information to the enemy than has any official in the Censor's department. And it would take a braver Government than this to prosecute him under the Defence of the Realm Act.

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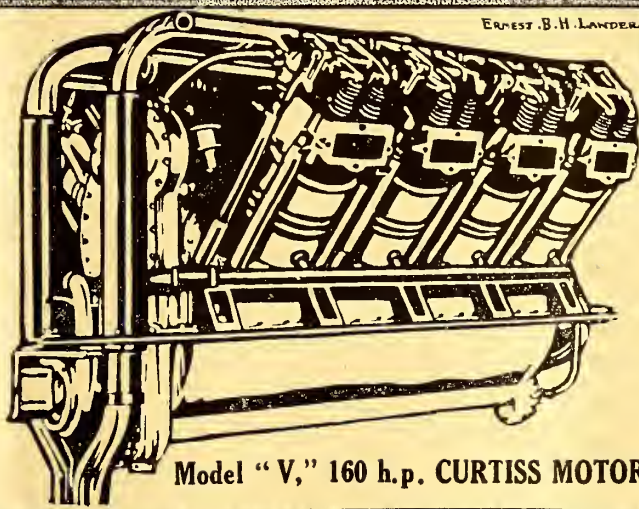
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From the "London Gazette," April 4th, 1916.

ADMIRALTY, April 1st.

ROYAL NAVAL AIR SERVICE.—Flight Sub-Lieuts. have this day been promoted to the rank of Flight Lieut.:—R. C. Petter, H. R. Hopperton, C. Tollemache, W. H. Dunn, G. Donald, F. J. E. Feeny, R. M. Everett, J. F. Hay, R. B. Munday, G. H. Jackson, R. T. H. Duff, J. Forgan-Potts, G. G. Dawson, J. P. Coleman, R. A. Reid (for temp. service); W. H. E. Campbell, J. S. Wheelwright, B. P. H. de Roeper (for temp. service), R. F. S. Leslie, F. H. M. Maynard, B. C. Bell (for temp. service), G. R. H. Talbot (for temp. service), H. G. Henley, F. J. Linnell, P. C. D. Douglass (for temp. service).

Act. Flight Lieut. R. B. B. Colmore has been confirmed in the rank of Flight Lieut. January 27th.

WAR OFFICE, April 4th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Flying Officers.—Temp. Sec. Lieut. D. W. Clappen, Gen. List; Sec. Lieut. J. H. Firstbrook, S.R. March 16th. Capt. W. A. S. Rough, Bedford R., S.R., Sec. Lieut. (temp. Capt.) G. Aste, A.S.C., S.R., and to relinquish his temp. rank, Lieut. J. S. Scott, Canadian F.A., temp. Lieut. S. W. Thompson, R. Scots Fus., and to be transferred to Gen. List, Sec. Lieut. B. P. G. Hunt, Shropshire Yeo., T.F., Sec. Lieut. S. B. Lee, S.R., Sec. Lieut. P. Huskinson, Sherwood For., and to be sec'd., Sec. Lieut. R. W. Le Gallais, S.R. March 21st.

Flying Officer (Observer).—Sec. Lieut. W. O. Raikes, The Buffs (E. Kent R.), S.R., and to be sec'd. October 2nd.

Asst. Equipmt. Officer.—Sec. Lieut. E. Cooke, S.R. March 21st.

MEMORANDA.—Maj.-Gen. Sir David Henderson, K.C.B., D.S.O., to be temp. Lieut.-Gen. March 24th.

Bt. Col. (temp. Brig.-Gen.) H. M. Trenchard, C.B., D.S.O., R. Scots Fus., A.-D.-C. to the King, to be temp. Maj.-Gen. March 24th.

Pte. C. H. Davies, from Lond. R., T.F., to be temp. Sec. Lieut. for duty with R.F.C. January 22nd.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—The following Sec. Lieuts. (on prob.) are confirmed in their rank: R. W. Le Gallais, E. Cooke, S. B. Lee. To be Sec. Lieuts. (on prob.): W. J. Sinclair. March 6th. C. P. V. Roche. March 18th.

REGULAR FORCES.—The following man to be temp. Sec. Lieut. (dated March 5th):—

INFANTRY.—SERVICE BATTALIONS.—NORTHUMBERLAND FUS.—Sec. Class Air Mechanic F. C. Arnaud, from R.F.C.

* * *

From the "London Gazette" Supplement, April 5th, 1916.

WAR OFFICE, April 5th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieuts. (on prob.) confirmed in rank: A. C. Ferguson, M. H. Thunder, J. L. Finney, G. I. Taylor.

* * *

From the "London Gazette" Supplement, April 6th, 1916.

WAR OFFICE, April 6th.

REGULAR FORCES.—MEMORANDA.—To be Temp. Sec. Lieuts: Pte. Noel Aston Ayres, from A.S.C., for duty with R.F.C. March 13th, 1916. First Class Air Mechanic Leslie Murden Page, from R.F.C., for duty with Mil. Wing of that Corps. March 24th, 1916.

ESTABLISHMENTS.—INFANTRY.—SECOND RESERVE.—KING'S (LIVERPOOL R.): W. E. de B. Whittaker (Lieut., R.N.V.R.) to be temp. Lieut. March 21st, 1916.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—J. H. Banks to be Sec. Lieut. (on prob.). March 13th.

* * *

From the "London Gazette," April 7th, 1916.

The King has been graciously pleased to give orders for the appointment of the undermentioned officer to be a Companion of the Distinguished Service Order:—

Lieut. REGINALD JOHN BONE, R.N., Flight Commander, R.N.A.S.

In recognition of his services on March 19th, 1916, when, flying a land machine and unaccompanied by an observer, he chased out to sea, and after bold and skilful manœuvring disabled and brought down by gunfire a German seaplane, which had been engaged in a raid on the coast of Kent.

[Congratulations to Lieut. Bone on at last receiving the reward which he won long before the episode of the Sunday "joy-ride." Lieut. Bone's friends have been rendered anxious of late by a rumour that he was to be court-martialled for (a) Using a Government machine for private flying. (b) Landing at a Government aerodrome, to wit Westgate, without orders. (c) Attacking an enemy aircraft without orders. (d) Risking Government property by flying a land machine out to sea, and (e) Generally acting on his own initiative and judgment. One assumes that the D.S.O. cancels any possible proceedings, for he could scarcely have escaped on many counts in the indictment.—Ed.]

WAR OFFICE, April 7th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Wing. Coms., from sqdn. coms., and to be temp. lieut.-cols. whilst so employed: Maj. A. G. Board, S. Wales Bord. March 19th. Capt. (temp. Maj.) F. V. Holt, D.S.O., Ox. and Bucks. L.I. March 20th.

Flight Coms., from flying officers, and to be temp. capt. whilst so employed: Lieut. G. D. Hill, 7th Hrs. March 20th. March 24th: Sec. Lieuts., S.R., W. P. Cort, H. Tomlinson, A. T. Harris.

TERRITORIAL FORCE.—ROYAL FLYING CORPS.—HANTS. AIRCRAFT PARKS.—J. H. Glover to be sec. lieut. April 8th.

* * *

From the "London Gazette" Supplement, April 8th, 1916.

WAR OFFICE, April 8th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Flying Officers (Observers).—Temp. Capt. P. A. Kirkup, Durham L.I., T.F.; Sec. Lieut. F. G. Russell, R.F.A., S.R. March 24th. Lieut. W. D. Budgen, Lein. R., and to be sec'd.; temp. Lieut. J. H. Truscott, Devon R., and to be transf'd. to Gen. List; temp. Sec. Lieut. C. H. M. King, R.G.A., and to be transf'd. to Gen. List. March 25th.

Wing Adjt.—Temp. Capt. F. R. Hedges, Suffolk R., and to be transf'd. to Gen. List. March 21st.

Asst. Equipmt. Officer.—Temp. Sec. Lieut. J. W. Burt, Gen. List. March 28th.

INFANTRY.—PRINCESS LOUISE'S (ARGYLL AND SUTHERLAND HIGHLANDERS).—Sec. Lieut. to be Lieut.—P. Anderson (September 27th, and to be sec'd. from November 22nd for service with R.F.C.).

MEMORANDA.—To be temp. Sec. Lieuts.: Pte. B. J. Mitchell, from R.A.M.C., T.F., for duty with the R.F.C. February 21st. First Class Air Mechanic L. E. Brown, from R.F.C., for duty with the Mil. Wing of that Corps. March 22nd.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieut. (on prob.) J. K. Aird is confirmed in his rank.

TERRITORIAL FORCE.—R.F.C.—HAMP. AIRCRAFT PARKS.—Sec. Lieut. W. Laidler, from Durham L.I., to be Sec. Lieut. April 9th.

* * *

From the "London Gazette" Supplement, April 10th, 1916.

WAR OFFICE, April 10th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Squadron Comms.—From Flight Comms., and to be temp. Maj. while so employed:—Capt. C. R. S. Bradley, 4th Cavalry, I.A.; Capt. J. A. Chamier, 33rd Punjabis, I.A. (March 27th).

Flying Offrs.—Sec. Lieut. J. K. Aird, S.R.; Sec. Lieut. A. C. Ferguson, S.R.; Sec. Lieut. M. H. Thunder, S.R.; Lieut. H. Clements-Finnerty, 17th Lancers, from a Flying Officer (Observer) (March 23rd).

Flying Offrs. (Observers).—Brev. Maj. A. J. Ross, R.E.; Capt. E. H. M. O'Farrell (R. Ir. Fus.) and to remain sec'd. (October 21st); Capt. I. de la Bère, Dorset R., and to be sec'd.; temp. Sec. Lieut. V. G. A. Bush, High. L.I., and to be transferred to Gen. List; Sec. Lieut. J. Milner, Durh. L.I., S.R.; temp. Sec. Lieut. F. G. Wilson, R. Fus., and to be transferred to Gen. List; temp. Sec. Lieut. H. L. Wallis, R.A., and to be transferred to Gen. List. (March 21st).

Balloon Offrs.—Temp. Sec. Lieut. H. O. Hope, K.R. Rif. C., and to be transferred to Gen. List. (March 6th); Temp. Lieut. O. H. Weekes, A.S.C.; temp. Sec. Lieut. G. T. Dunstan, R. W. Surr. R., and to be transferred to Gen. List; temp. Sec. Lieut. G. A. N. Mitchell, R. Fus. (March 11th); Capt. D. Rainsford-Hannay, 53rd Sikhs (Frontier Force), I.A. (March 20th).

Asst. Equipment Offrs.—Temp. Lieut. A. C. Bishop, Berks Yeo., T.F. (March 23rd); temp. Sec. Lieut. H. M. Bentley, Gen. List (March 26th); Sec. Lieut. J. L. Finney, S.R. (March 27th). Temp. Sec. Lieut. H. T. Birdsall, Gen. List; temp. Sec. Lieut. B. J. Mitchell, Gen. List (March 28th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Capt. E. Keith Davies resigns commn. (April 11th).

NAVAL.

The following appointments were notified at the Admiralty on April 4th:—

ROYAL NAVAL AIR SERVICE.—Flight Commr.—F. K. Haskins, granted act. rank of Squad. Commr., with seny. of March 31st.

Flight Lieuts.—R. H. Mulock and G. H. Beard both granted act. rank of Flight Commr., with seny. of March 31st.

The following have been entered as Proby. Flight Sub-Lieuts. (temp.), with seny. of April 3rd, and all appointed to "President," addl., for R.N.A.S.:—H. F. Parker, A. O. K. Wright, R. Maxwell, E. P. M. Davis, L. W. Ormerod, W. G. R. Hinchcliffe, E. B. J. Walter, A. J. Enstone, I. M. Fry, A. F. Brandon, R. N. Brain, and T. F. B. Howe.

* * *

The following appointments were notified at the Admiralty on April 5th:—

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ROYAL NAVAL AIR SERVICE.—Lieut.-Commr.—K. G. Brooke, to "President," for R.N.A.S. (April 3rd).

Flight Commr.—I. H. W. S. Dalrymple-Clark, promoted to Act. Squad. Commr., with seny. of April 1st.

Lieuts. (R.N.V.R.).—W. W. Hood and W. A. Dye, both promoted to Lieut.-Commr. (R.N.V.R.), with seny. of April 3rd.

Sub-Lieuts. (R.N.V.R.).—J. E. Arrol-Hunter and W. N. Lucas-Shadwell, promoted to Lieuts. with seny. of April 3rd.

* * *

The following appointments were notified at the Admiralty on April 7th:—

ROYAL NAVAL AIR SERVICE.—Maj., R.M.L.I., E. S. Mairis, to the "President," additional, for R.N.A.S., to date April 5th.

Proby. Flight Sub-Lieuts.—J. Ree and R. E. Green granted temp. commission as sub-lieuts., R.N.V.R., and appointed to the "President," for R.N.A.S., to date April 6th.

The undermentioned have been entered as proby. flight sub-lieuts. for temp. service, to date as stated: H. R. Brenton, February 24th; P. O. Gadbois, A. Y. Wilks, and M. C. Dubue, February 29th.

* * *

The Secretary of the Admiralty announced the following casualty on April 4th:—

INJURED (under date April 3rd).

Flight Lieut. Harold G. Henley, R.N.

* * *

The following appeared in the casualty list issued on April 8th:—
NAVAL DETAILS WITH EXPEDITIONARY FORCE. KITE BALLOON SECTION, R.N.A.S.

KILLED (ACCIDENTALLY).—Biddlecombe, F., Air Mech., 1st Cl., F.4493.

* * *

The following appeared on April 5th:—

MURFIT—FERGUSON.—On April 1st, at St. Andrew's Church, Muswell Hill, by the Rev. M. O. Blakelock, Charles J. Murfitt, Lieut., R.N.A.S., son of Mr. and Mrs. Murfitt, of Camden Square, to Elizabeth Macdonald (Bessie), youngest daughter of the late P. Blair Ferguson, of Rothesay, and Mrs. Ferguson, of Muswell Hill.

* * *

The following appeared on April 5th:—

VAUGHAN-FOWLER.—On April 2nd, at 67, Marine Parade, Sheerness, to Flight Commander and Mrs. Guy Vaughan-Fowler, a son.

* * *

Though it may be somewhat out of order to do so, one cannot refrain from noting the fact that Flight Lieut. Vivian Gaskell Blackburn, R.N., holds the record for variegated mention in dispatches. He was first mentioned in connection with the Cuxhaven raid on Christmas Day, 1914. He was next mentioned in dispatches concerning the destruction of the "Königsberg" in East Africa. And he is now mentioned in Sir John Nixon's dispatch describing the operations at Kut-al-Amara. To be twice mentioned in Naval dispatches and once in Army dispatches in three widely separate theatres of war inside nine months is not so bad a record for a civilian, who is, moreover, the product of a civilian flying school. Those who are interested in coincidences, or omens, may be pleased to note the perspicacity of this young officer's sponsors in endowing him with the initials V. G.

* * *

[The following appeared in the social columns of the daily Press last week. As the young gentleman's relatives (presumably prospective-in-law at that time) did not appear to have known to which Service he belongs, one gives him the benefit of the doubt and puts him among the Senior Service.—Ed.]

The marriage arranged between Flight Second Lieutenant J. O. Archer and Miss Esther Chilton will take place at St. Mary Abbot's, Kensington, at 2 p.m. next Tuesday. Owing to the war there will be no reception, but all friends will be welcome at the church.

MILITARY.

G.H.Q. dispatch of April 4th says:—

Yesterday a German machine was shot down behind our lines south of Souchez. Pilot and observer were both killed.

* * *

G.H.Q. dispatch of April 9th says:—

Yesterday a Fokker monoplane came down in our lines. The pilot was taken prisoner and is unwounded.

* * *

On April 4th the Secretary of the War Office made the following announcement:—

A Zeppelin is reported to have crossed the East Anglian Coast between 2 and 3 o'clock this morning. The airship does not seem to have been long over the land, and although several explosions have been reported no fragments of bombs have been discovered up to date.

No damage was caused, and no casualties can be traced.

On April 6th at 2.50 a.m. the Secretary of the War Office made the following announcement:—

A Zeppelin attacked the North-East Coast at about 9.50 p.m. last night, and was driven off by the fire of the anti-aircraft defences.

Some bombs were dropped, but no information has yet been received as to casualties or damage.

* * *

Later on April 6th the Secretary of the War Office made the following announcement:—

The air raid of last night on the North-Eastern Counties was apparently carried out by three Zeppelins.

The first one made an attack about 9.10 p.m., but was driven off by the fire of anti-aircraft guns after dropping five bombs which caused no damage or casualties. Numerous observers state that this Zeppelin was struck by gun-fire.

A second raider made his appearance in another locality about 10.15 p.m., and though he was in the neighbourhood for some time, no bombs were dropped.

Another raider delivered an attack in a third locality during the night, but although several bombs were dropped, only slight material damage was caused.

The total number of bombs dropped was 24 explosive and 24 incendiary, and the casualties at present reported are:—

	Men.	Women.	Children	Total.
Killed ...	—	—	1	1
Injured ...	2	1	5	8

No military damage was caused.

* * *

The dispatch from General Sir John Nixon, K.C.B., relating to the operations in Mesopotamia from the middle of April to the end of September, 1915, published by the War Office on April 5th, makes the following references to the work of the Royal Flying Corps and the detachment of the Royal Naval Air Service which assisted in the operations:—

THE CAMPAIGN ON THE KARUN.

13. An aeroplane reconnaissance on the morning of June 1st discovered that the enemy had evacuated his main position, and was in full retreat up the Tigris.

NASIRIYAH OCCUPIED.

31. I have to place on record the excellence of the work performed by the officers and men of the Royal Flying Corps, whose valuable reconnaissances materially assisted in clearing up the situation before the battle of July 24th.

THE ATTACK ON KUT.

36. A few skirmishes had taken place between our cavalry and that of the enemy, and constant naval and air reconnaissances were made. Accurate information was gained regarding the dispositions of the enemy.

The work performed by the Royal Flying Corps during this period was invaluable.

57. The services of the Royal Flying Corps, not only during the battle but also in the frequent reconnaissances which preceded the fighting, also call for notice.

The Flying Officers displayed courage and devotion in the performance of their duties, which were often carried out under a heavy fire. The accurate information obtained during air reconnaissances was of the utmost value in planning the defeat of the enemy, and the remarkable skill and powers of observation displayed by Flight Commander Major H. L. Reilly, Royal Flying Corps, contributed in no small degree to the success of the operations. [Major Reilly was a Squadron Commander.—Ed.]

* * *

The following officers and men are mentioned in Sir John Nixon's dispatches:—

OPERATIONS AT AMARA (May 31st-June 4th, 1915).

ROYAL FLYING CORPS.—Maj. P. W. L. Broke-Smith, Lieut. W. W. A. Burn (since killed), Capt. H. Petre, Maj. H. L. Reilly.

EUPHRATES OPERATIONS (June 26th-July 25th, 1915).

ROYAL FLYING CORPS.—Capt. B. S. Atkins, 11th Rajputs (attached), Lieut. W. W. A. Burn (since killed), Lieut. G. F. Merz (since killed), Capt. W. G. Palmer, 113th Infantry (attached), Maj. H. L. Reilly, Lieut. T. R. Wells, No. 2 Staff Sergt. C. V. Heath, No. 4473 Sergt. T. N. Palmer, No. 4474 Sergt. R. J. Tomlinson.

OPERATIONS KUT-AL-AMARA (September 28th, 1915).

ROYAL NAVAL AIR SERVICE.—Lieut. V. G. Blackburn, Maj. R. Gordon.

ROYAL FLYING CORPS.—Lieut. E. J. Fulton, Capt. H. Petre, Maj. H. L. Reilly, Capt. F. C. C. Yeats-Brown (17th Cavalry), attached, 4473 Sergt. T. N. Palmer, 6 First Class Mechanic C. E. Wardell.

* * *

The Secretary of the War Office issued a statement on April 6th which included the following:—

Sir Percy Lake reports that the Tigris Corps, under the command of Lieut.-General Sir G. Goringe, who has succeeded General Aylmer, attacked the enemy's entrenched position at Umm-el-Hannah at 5 a.m. on the 5th.

Aeroplane reconnaissances then reported that the enemy was

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strongly reinforcing his entrenchments at the Falahiyah and Sanna-i-yat positions, respectively 6,000 and 12,000 yards from the front trenches at Umm-el-Hannah. As these positions could only be approached over very open ground, General Gorringe ordered further attack to be deferred till the evening.

* * *

The following appeared in the Casualty List of April 5th :—
WOUNDED.—Capt. J. T. Powell-Whittaker, A.S.C. and R.F.C.
2883 First Class Air Mechanic G. Greenwood, R.F.C.

* * *

The following appeared in the Casualty List of April 6th :—
MISSING.—Sec. Lieut. J. S. Castle, R.F.C.

* * *

The following appeared in the Casualty List of April 7th :—
WOUNDED.—Capt. Denys C. Ware, Liverpool Regt. and R.F.C.

* * *

The following appeared in the Casualty List of April 8th :—
WOUNDED.—Sec. Lieut. H. P. Bramwell, Argyll and Sutherland Highlanders, attd. R.F.C.

MISSING.—Sec. Lieut. H. G. Frost, Suffolk Regt., attd. R.F.C.
Sec. Lieut. F. N. Grimwade, R.F.C.

* * *

The following appeared in the Casualty List of April 10th :—
OFFICIALLY REPORTED MISSING AND UNOFFICIALLY REPORTED
KILLED.—Welsford, Sec. Lieut. G. J. L., Middlesex, and R.F.C.
OFFICIALLY REPORTED MISSING AND UNOFFICIALLY REPORTED
WOUNDED AND PRISONERS OF WAR.—Pinder, Sec. Lieut. F. G., R.F.C.

Wilson, Sec. Lieut. T. C., R.F.C.

OFFICIALLY REPORTED MISSING AND UNOFFICIALLY REPORTED
PRISONERS OF WAR.—Halford, Sec. Lieut. E. A., Wiltshire, attd. R.F.C.

Joyce, Lieut. W., Bedfordshire, attd. R.F.C.

* * *

Sec. Lieut. G. J. L. Welsford, Middlesex Regt. and R.F.C., officially reported missing on March 31st, is now stated to have been killed while flying on March 30th. His school friend, Lieut. Wayland-Joyce, R.F.C., who was presumably with him on the same machine, is reported to be an unwounded prisoner. Mr. Welsford, who was 20 years of age, was the only son of the late J. W. Welsford, assistant master in Harrow School and Fellow of Caius College, Cambridge, and of Mrs. E. W. Freeborn, and stepson of Major E. W. Freeborn, of Harrow. He was educated at Orley Farm School, Harrow, at Marlborough College, in Berlin—Lichterfelde-West—and Caius College, Cambridge. He read law at Caius intending to become a barrister.

On the outbreak of war he had been at Cambridge a year. He promptly got a nomination for Sandhurst, where he spent four months. On passing out he joined the Middlesex Regt., and was wounded on May 9th. During his convalescence he learnt to fly at Hendon and took his R.Ae.C. certificate. He returned to the front for three weeks and was then recalled for transfer to the R.F.C. He returned again to the front on February 24th.

* * *

Sec. Lieut. M. Girod, the Cheshire Regt., reported killed, was educated at Seaford College, Sussex, and in Switzerland. He was transferred to the R.F.C. on September 13th, 1914. He obtained his observer's wing, and was passing for his pilot's wings when his machine came to grief and he lost his life on March 19th at the age of 23. He was the son of Mr. Ernest Girod, for 30 years consulting engineer to the Linotype Company, London and Paris.

* * *

Sec. Lieut. Geoffrey Wynne Bavin, whose death while flying at Salisbury Plain was reported last week, was the third son of Capt. J. T. Bavin, the 12th Queen's, and Mrs. Bavin, of Berkhamsted, Herts. This young officer, whose father and two elder brothers have been serving since 1914, was born in 1897, and was educated at Westminster Abbey Choir School, Berkhamsted School, and at Sandhurst. Leaving the R.M.C. in October, he obtained his pilot's certificate in November, and his "wings" early in February.

His commandant says of him : "He was an extraordinarily fine pilot, and had he lived would undoubtedly have been in the front rank of airmen. On the day of his death he was about to take up a position in the experimental squadron, where his fine flying would make him very useful. He was a clean, straight boy, and is a great loss, not only to his family, but to the Service." His two elder brothers are in France.

* * *

The following appeared in the obituary columns on April 5th :—
BAILEY.—John Winckworth, M.A., Sec. Lieut., R.F.C., dearly-beloved and only surviving son of the Rev. John and Mrs. Bailey, of Rochester, killed while on duty on March 31st, 1916, aged thirty-three.

[One recalls that there was a Zeppelin raid on the night of March 31st. There may have been no connection between that

event and the sad accident recorded above, for presumably it was an accident seeing that Mr. Bailey's name does not appear in the R.F.C. Casualty Lists—but the coincidence of dates remains. One tenders to the officer's parents the sympathy of those concerned with aviation.—Ed.]

* * *

The following appeared in the obituary columns on April 11th :
NICHOL.—On April 5th, accidentally killed while flying at night on the North-East Coast of England, John Nichol, aged twenty-two, Lieutenant Royal Scots Fusiliers, and Flying Officer, Royal Flying Corps, second son of Dr. and Mrs. Nichol, of Margate.

An inquest was held at a north country village on April 7th on the body of Flight Lieut. John Nichol, 22, of Margate. The evidence showed he was killed while starting on a reconnoitring flight.

The deceased was stated to have shown great skill and judgment in attacking hostile aircraft. A verdict of "Accidental Death" was returned.

[Further details of the accident are not available, but one would like to know whether this is another of the "accidents" which are with so much difficulty distinguished from manslaughter? An accident to a pilot starting on a reconnaissance should be an absolute impossibility. One recalls in this instance also that there was a Zeppelin raid in the early morning of the April 5th.—Ed.]

Lieut. John Nichol, Royal Scots Fusiliers and R.F.C., was educated at Mr. Hawtrey's, Westgate, at Charterhouse School, and the R.M.C., Sandhurst. He received his commission in 1912, and joined the 1st Battalion of his regiment in Pretoria, returning shortly before the war. He was prevented from going to the front with his regiment by an accident, and after a few months with the 6th Battalion was attached to the R.F.C. as an observer. He served at the front from Feb. to Oct., 1915, and was then sent home to learn flying. He took his "wings" in January, 1916, and met with a fatal accident on April 5th.

Dr. Nichol has received the following telegram from a Mayor :—"On behalf of the citizens of this town, as also on my own behalf, I desire to offer you our heartfelt sympathy in the loss which you have sustained through the death of your gallant son, Lieut. Nichol. Please express to other bereaved relatives our sincere condolence. Have wired Town Clerk of Margate asking him to obtain a wreath and forward it to your address."

The Mayor received the following reply :—"Dr. and Mrs. Nichol and their family are deeply grateful for the touching telegram of sympathy and for their gift of a wreath in memory of their dead son."

* * *

Capt. Walter Gerard Palmer, Infantry, Indian Army, attached Royal Flying Corps, who was killed on March 5th, aged 32 years, was the second son of the late C. E. Palmer and Mrs. Palmer, of Instow. He obtained his first commission in January, 1903, and was gazetted to the Indian Army in the following year. He was promoted captain in January, 1912.

* * *

The following appeared in the obituary columns on April 7th :—
TAYLOR.—On March 14th, 1916, Lieut. Denis Percival Beauchamp Taylor (Military Cross), Hussars and R.F.C., only son of Colonel P. B. Taylor, late R.H.A., aged 21.

Lieut. Denis Percival Beauchamp Taylor, Hussars and R.F.C., previously reported missing, is now reported to have been killed on March 14th. He was the only son of Colonel P. B. Taylor, late R.H.A., and was born in 1894. He obtained his first appointment in September, 1913. In November, 1914, he was promoted temporary lieutenant. He had won the Military Cross.

* * *

The following appeared in the obituary columns on April 7th :—
LE BRASSEUR.—On April 5th, in London, Edith, wife of Lieut. R. H. Le Brasseur, R.F.C., aged 19 years.

* * *

An engagement is announced between G. Brian Pratt, R.F.A., attached Royal Flying Corps, eldest son of Mrs. and the Rev. C. E. Pratt, vicar of St. Michael and All Angels' Church, Eastbourne, and Grace Marian, eldest daughter of the late William Allison, of Louth, Lincolnshire, and Mrs. Allison, West Cliffe Bungalow, Bexhill-on-Sea.

* * *

An engagement is announced between Capt. Steele Hutcheson, 3rd Brahmans, Royal Flying Corps, son of Colonel G. Hutcheson, M.D., late I.M.S., and Esther, eldest daughter of Robert Manners Downie, Cornsbrook, Knutsford, Cheshire.

* * *

The following appeared on April 11th :—

FLOYER—VOST.—On April 8th, at St. Paul's, Frimley, by the Rev. A. H. Watson, rector of Lighthorne, Warwick, Ernest Ayscoghe Floyer, Lieut. I.A.R. and R.F.C., eldest son of the late Ernest Ayscoghe Floyer, of Cairo, Egypt, and Mary Cornish, and stepson of Vaughan Cornish, D.Sc., of Woodville, Camberley, to Lena Cecile, elder daughter of Henry and the late Pauline Vost, of Allahabad, India. (Indian papers please copy).

The following appeared on April 6th:—

MACDONALD.—On April 4th, at Mount Reid, Brockhurst, Gosport, the wife of G. K. Macdonald, 3rd Sherwood Foresters and R.F.C.—a son.

* * *

All concerned with the R.F.C. will be glad to see the promotions gazetted on April 4th, and dated March 24th, of Maj.-General Henderson to be temp. Lieut.-General, and of Col. (temp. Brig.-General) Trenchard to be temp. Maj.-General. General Henderson's work in founding and organising the R.F.C. has merited and won reward. He has undoubtedly backed the wrong horse in allying himself so closely with the civilian "experts" who have been attached to his department, and in bowing to their theoretical opinions. He would have done better to have consulted his active-service pilots as to their needs, and then to have asked a committee of the Aircraft Industry to supply those needs in the quickest possible way, for by taking the latter course he could have secured far better equipment for the R.F.C., and would have saved a large proportion of the Corps' casualties. Nevertheless, one can learn that General Henderson has done good work in other directions, if one looks into details, and his promotion is the reward for services rendered.

General Trenchard's promotion is the bare due of the man who has built up the personnel of the R.F.C., and who has made a really smart corps out of singularly unpromising material. At the C.F.S. in the old days, he won the reputation of being a terrible martinet, but those who knew him also knew the kindness of heart concealed beneath his outward severity, and many an officer who has since distinguished himself acknowledges freely that Major Trenchard, as he then was, made a soldier of him out of an unlicked cub.

On active service General Trenchard has, as ever, looked after his men's welfare, while still preserving the strict discipline which has made the R.F.C. what it is. One can readily believe that when

it has been necessary to send aviators over the German lines on unsatisfactory machines, or on machines known to be inferior to those of the enemy, no one has felt the tragedy of the act more keenly than the G.O.C., R.F.C., in France, but it must be remembered that a General Officer on active service has to work with whatever matériel may be sent him by his superiors at home, and that the work of the Army must be done at all costs with the matériel available.

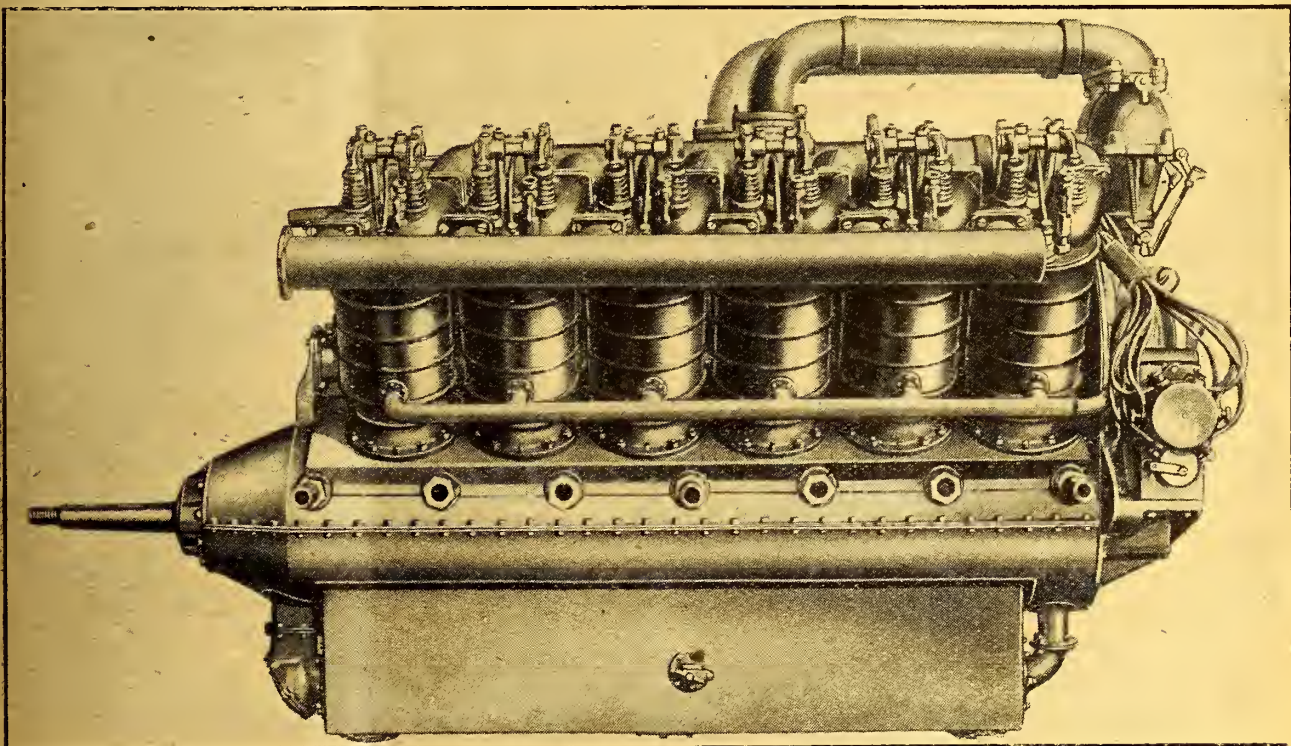
One can only hope that the needs of the R.F.C., which are perfectly well understood by General Trenchard, may be adequately supplied in future, and that when the supply of matériel is placed on a proper footing the R.F.C. may so improve in its usefulness and effectiveness as to bring further merited promotion to the G.O.C., and to those who have helped him in righting what is wrong.

* * *

Following the official citation of the act for which temp. Sec. Lieuts. Howe and Leggatt were awarded the Military Cross, in last week's AEROPLANE, it is now possible to give a rather more detailed account of what happened, received from an independent source:—

It appears that Mr. Leggatt (pilot) and Mr. Howe (observer) were on patrol duty at a height of 10,000 ft. Seeing an enemy aeroplane making for the German lines 6,000 ft. up, the British machine gave chase. As Mr. Leggatt dived the machine down at a speed of well over 100 miles an hour, Mr. Howe fired, and the enemy machine, apparently hit, dived and disappeared behind the German lines.

Rising again to 9,000 ft., the British machine sighted an Albatros biplane making towards the British aerodrome. Giving chase, Mr. Leggatt gradually overhauled the enemy until they were flying at the same level. When only 150 yards separated the two machines Mr. Leggatt wore slightly so that his observer



AN AMERICAN "V" ENGINE.

Many engineering enterprises are hard at work in the United States on the production of Aero Motors, and not the least interesting among them is the Van Blerck "All-Steel" engine.

This power plant is at present made in eight-cylinder and twelve-cylinder models of 135 and 200 b.h.p. respectively. The two models are practically identical except in number of cylinders, so that a description of the 135-h.p. covers the two models.

As will be seen from the illustration the engine is of the "V" water-cooled type with central valve gear. The cylinders are 4½ in. bore by 5½ in. stroke, and are made of high grade machine steel cut from the solid and bolted to the crank-case with chrome nickel steel studs and bolts. The water-jackets are of non-corrosive metal, and water is circulated by a centrifugal pump running at crank-shaft speed.

The pistons are of cast iron and fitted with concentric semi-steel rings of special design. Connecting rods and crank-shaft are made of chrome nickel steel, all of tubular section. The cam shaft has the cams forged integral with shaft and case-hardened.

All bearings are lubricated by forced feed. Two duplex oil

pumps, submerged in oil, are fitted one on each side of the crank-case. One side of each pump drives the oil through the hollow crank-shaft to the bearings, and the other side returns the surplus oil from the crank-case to the oil reservoir, which contains sufficient lubricant for five hours, running at full power.

The power curve of the eight-cylinder engine is practically a straight line, indicating 110-h.p. at 1,200 r.p.m. (3.82 lbs. per b.h.p.), and 130-h.p. at 1,500 r.p.m. (3.35 lbs. per b.h.p.). After this the curve falls away slightly to 135-h.p. at 1,600 r.p.m. (3.13 lbs. per b.h.p.)

The curve of the twelve-cylinder engine is in proportion, 180-h.p. being given at 1,200 r.p.m. (3.54 lbs. per b.h.p.), 195-h.p. at 1,500 r.p.m. (3.00 lbs. per b.h.p.), and 200-h.p. at 1,600 r.p.m. (2.87 lbs. per b.h.p.)

The total weights of the engines without radiators are 420 lbs. and 580 lbs. respectively. No aluminium, nor any of its alloys, enters into the construction of the motors.

The Van Blerck Motor Co. is located at Monree, Mich., U.S.A. Detailed illustrated descriptions of the engine may be obtained free by anyone mentioning this paper.

could fire effectively. Heavy firing continued for some time between the two machines, when suddenly the Albatros dived and turned.

The chase continued and a heavy fire was maintained, 400 shots being fired from the British machine.

Finally the German pilot was wounded and his engine was damaged. He was obliged to descend in the British lines, but before reaching the earth the machine turned upside down. Mr. Leggatt then flew to the British aerodrome, to which the German machine was afterwards conveyed. The enemy pilot and observer somehow escaped being killed when the machine turned over, and were taken prisoners, the former being sent to hospital.

The "Times" publishes the following amusing letter from an officer in the Royal Flying Corps:—

FRANCE, March 14th, 1916.

Herewith latest war news as passed by Censor—so I hope. The weather continues fine—in fact to-day has been perfect. We were sitting out in front of the Chateau on deck chairs to-day imbibing sunshine. [Was it the Chateau de la Grave Indelicatessé?—Ed., AEROPLANE.] I was up with the lark, likewise Rowland. Weather being fine we were hounded up into the air—to proceed in an easterly direction over the place where the unkind people are—to pick up information. I, even I, was leading the show this morning—i.e., the observer in my machine had to do the observing.

The day was fine and the air was still, and everything went well until

The Archibalds began to flash and deafen me with noisesome crash.

I hid my head, I stopped my ears in vain attempt to calm my fears;

I whistled every tune I knew and tried to think it wasn't true.

Then came a pause, we'd passed the zone; in fear I fingered every bone.

Then lo! a smile o'erspread my face, for every bone was in its place.

So things went on; we ran our course and turned for home no whit the worse,

Until three Hunlets on our stern constrained us, like the worm, to turn.

Then bullets whizzed and bullets flew (as bullets very often do);

While pilots showed their brilliant nerve, with hawk-like stoop

and 'orrid swerve.

The Huns went off, but came again; three times they did it just the same.

And then behold us o'er the spot, where "Archibald's" uncommon hot.

Bang! Bang! Wouff! Wouff! again I feel for pheasants, part-ridges, and teal

That people try to shoot with guns (just like these blasted "Archie" Huns).

And so to home in peaceful calm, a chair, a little liquid balm, A cigarette, so ends the fray—to-morrow begins another day.

[The Spirit of Spring thrills the air of Flanders, and the Spring Poet of the R.F.C. begins to get in his fine work.—Ed.]

THE COURT CIRCULAR.

BUCKINGHAM PALACE, April 8th.

The following Officer also had the honour of being received by the King, when his Majesty conferred on him the Military Cross:—

Major PATRICK PLAYFAIR, Royal Flying Corps.

FRANCE.

The communiqué of April 4th says:—

Last night one of our dirigibles dropped thirty-four bombs on the railway station of Audun-le-Roman.

* * *

The communiqué of April 5th says:—

In the region of Verdun our pursuing aeroplanes on April 4th had 15 aerial encounters, in the course of which a German aeroplane with two engines was brought down near the pool of Hauts Fourneaux. Another enemy machine fell near the Bois de Tilly, while a third fell vertically to the ground. All our pilots returned safely.

On Monday night one of our air squadrons dropped 14 shells on the railway station of Nantillois and five on the bivouacs of Damvillers.

* * *

The communiqué of April 6th says:—

During the month of March our military aircraft displayed great activity along the entire front, notably in the region of Verdun. In the course of many aerial engagements 31 German machines were brought down by our pilots, nine of which descended in flames or crashed to the ground within our lines, while 22 were brought down in the German lines.

There is no doubt concerning the fate of these 22 machines which our pilots attacked over the enemy's lines. Twelve of these aeroplanes were seen coming down in flames, and 10 descended in headlong spirals under the fire of our aviators.

[One may express a mild doubt as to the ultimate destruction of those ten. See the German communiqué opposite.—Ed.]

Moreover, four German machines were brought down by our special guns, one in our lines in the neighbourhood of Avocourt and three in the enemy lines—one near Suippes, one near Nouvion, and one near Sainte Marie-à-Py.

To this total of 35 German machines destroyed during the month of March must be contrasted the figures of our aerial casualties, which amount to 13 machines lost, as follows:—One French machine brought down in our lines, and 12 French machines brought down in the German lines.

The great disproportion existing both as regards our own machines and those of the Germans between the descents in the French zone and in the German zone is significant. According to a paper found on a prisoner, the German pilots are reported to have received orders to cross their own lines as little as possible. The balance for the month of March shows, on the contrary, that our aeroplanes de chasse are constantly flying over the enemy's territory seeking a fight.

* * *

The communiqué of April 10th says:—

During the daytime on April 8th one of our pilots, during an aerial fight in the Verdun region, brought down a Fokker, which fell in our lines near Esnes. On the 9th another Fokker was brought down by the fire of our special guns. The machine fell in the Woevre in the German lines. A third Fokker landed in Champagne. The machine was intact. Its pilot was captured.

This afternoon a German aeroplane flew over Nancy and dropped two bombs, which only caused slight material damage.

* * *

It is reported that on April 3rd a French destroyer brought in to Dunkirk a German seaplane which was found in the North Sea with a broken wing. The two occupants were taken prisoners.

* * *

It is reported that disguised German aeroplanes flew over Epinal on April 3rd last, dropping several bombs on the town, which caused rather heavy material damage but resulted in no casualties.

GERMANY.

The Naval communiqué of April 3rd says:—

During the naval airship attack on the night of April 3rd-4th on the English South-East coast explosive bombs were dropped on the fortification works near Great Yarmouth. The airships returned undamaged, notwithstanding the enemy bombardment.

* * *

The Naval communiqué of April 4th says:—

For the third time on the night of April 2nd-3rd a naval air-squadron attacked the English east coast, this time the northern part.

Edinburgh and Leith, with the docks on the Firth of Forth, Newcastle, and important wharves and buildings, blast furnaces, and factories on the Tyne were bombarded with numerous explosive and incendiary bombs with very good results.

Heavy explosions, with extensive collapses, were observed. A battery near Newcastle was silenced.

In spite of the heavy bombardment all the airships safely returned and landed.

* * *

The communiqué of April 5th says:—

The following are the results of the aerial battles on the Western front during March. The German losses amount to: In aerial battles, 7 aeroplanes; by being shot down from the earth, 3; missing, 4; making a total of 14 aeroplanes.

The French and English losses amount to: In aerial battles, 38 machines; by being shot down from the earth, 4; by involuntary descent within our lines, 2; a total of 44 aeroplanes. 25 of these enemy aeroplanes fell into our hands. The descent of the other 19 machines has been observed without leaving any doubt.

[Evidently someone is lying. The 14 admitted as lost may be the 12 seen in flames by the French, and two claimed by the British communiqués, but there are still others to be explained. On the other hand, the French admit losing 13 machines, and if one adds British losses it appears as if the Germans do actually score on balance.—Ed.]

* * *

The Naval communiqué of April 6th says:—

Naval airships on the night of April 5th destroyed large iron-works near Whitby and extensive buildings with blast furnaces, after previously pelting with explosive bombs and placing out of action a battery north of Hull.

Furthermore, factories at Leeds and the environs, and a number of railway stations in the industrial district, were attacked. Very good effects were observed.

The airships were heavily bombarded. All landed undamaged.

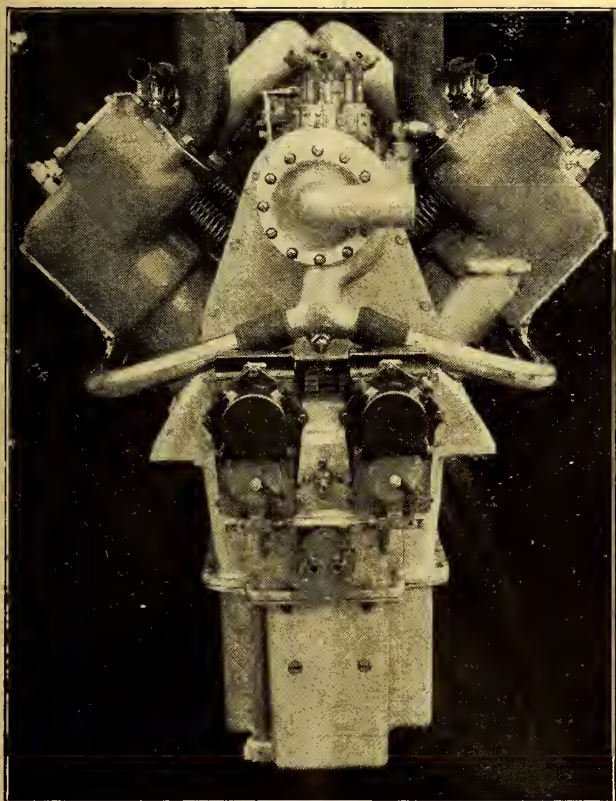
* * *

The communiqué of April 9th says:—

On Saturday four of our naval aeroplanes attacked the Russian aerodrome at Papensholm, near Kielkond on Oesel (the large island at the entrance to the Gulf of Riga). Twenty bombs were dropped. Two out of four enemy aeroplanes which



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

went up were forced to descend. In spite of heavy fire from anti-aircraft guns our aeroplanes returned safely.

* * *

The official communiqué of April 10th says:—

In various aerial fights which took place one French aeroplane was shot down to the south-east of Daniloup and one north-east of Chateau-Salins. The occupants of the former are dead.

An enemy aeroplane was seen to crash to earth in the village of Loos and another in the Caillette Forest.

RUSSIA.

The communiqué of April 4th says:—

Enemy aviators flew over our cantonments at many points and dropped nine bombs on the town of Liakhovitchi (in the centre).

* * *

The communiqué of April 5th says:—

South of the Dvinsk region enemy aircraft were active, some of them dropping bombs or firing their machine-guns.

* * *

The communiqué of April 7th says:—

In the region north of Chartoryisk (on the Sty) enemy aviators dropped a bomb.

* * *

The communiqué of April 9th says:—

Enemy aviators flew over many places on the Dwina front, and dropped bombs. Our aviators made some successful flights. In the Riga region one of our aircraft of the Mourometz type flew over the enemy's lines and dropped bombs on his cantonments.

* * *

The communiqué of April 10th says:—

German aeroplanes dropped bombs near Remershof and Dvinsk railway stations.

North-east of Lake Vishnevskoe (south of Dvinsk) there was lively activity by the enemy artillery.

On the Oginski Canal (in the centre) enemy aeroplanes dropped bombs on our lines.

ITALY.

The communiqué of April 4th says:—

It is officially announced that at 3.30 this afternoon five enemy seaplanes, accompanied by torpedo-boats, which kept well off from the coast, appeared over Ancona.

Six Caproni aeroplanes made a daring raid on the important railway station at Adelsberg and the seat of a high Austrian command. They dropped 40 bombs, causing big outbreaks of fire. Our aviators, on being attacked by enemy aviators, brilliantly repulsed them and returned safely.

Enemy aeroplanes attempted obstinate attacks on our territory, but were repulsed by our artillery fire and counter-attacked by our aircraft. One aeroplane succeeded in dropping two bombs on Bassano, causing only very slight damage. One of our Caproni machines dropped a heavy bomb on Grafenberg (Gorizia), causing a fire.

* * *

The communiqué of April 5th says:—

Enemy aircraft yesterday attempted to make their way to Verona, but they were immediately driven back to the north. Other aircraft succeeded in dropping a few bombs on Bassano, killing two children.

A raid was also attempted in the Lower Isonzo zone and on Grado, a few bombs being dropped on some hamlets. Our artillery and defence squadrons drove back the enemy aircraft, two of which were seen to come down suddenly near their own lines.

* * *

The communiqué of April 7th says:—

The fighting in the air has been marked by fresh brilliant successes for us. Last night seven enemy aeroplanes made a raid on the plain between the Isonzo and the Tagliamento, but our brave aviators rose quickly in the dark and attacked and repulsed the enemy squadron, bringing down two aeroplanes and capturing four aviators, of whom three were officers.

* * *

The communiqué of April 9th says:—

In the bombardment of Opicina by one of our airships on the night of April 2nd large supply depots were observed to be set on fire and the railway junction wrecked.

* * *

The communiqué of April 10th says:—

Last night one of our dirigibles flew over the fortified position of Riva and dropped 40 grenades and torpedoes on the works emplacements, the railway, and the military buildings. The results of the bombardment were observed to be very effective. The airship was caught by the enemy's searchlights and rockets and subjected to intense artillery and rifle fire, but nevertheless returned safely to our lines.

TURKEY.

The communiqué of April 7th says:—

On Tuesday last (April 4th) eight enemy aeroplanes flew over Gallipoli. Capt. Buddecke attacked them, and in the course of an aerial fight shot down an enemy aeroplane. The search of

the enemy's torpedo-boats, which came to its assistance, was fruitless.

* * *

It was reported at Athens on April 5th that an aeroplane attack was recently launched against the Turkish camp at Smyrna and on Vourla and the fort of Casaraki. Damage was caused.

BULGARIA.

It is reported that on April 4th there was an air fight at Karasuli (on the Vardar, south of Ghevveli) between six French aeroplanes and eleven German machines. A German aeroplane was sunk.

GREECE.

It is reported that on April 4th enemy aeroplanes from Ghevveli tried to reach Salonika. On their approach being signalled French machines ascended and gave battle, obliging the hostile squadron to turn tail.

THEIR LORDSHIPS AND THE AIR.

Doubts have been expressed as to the attitude the Lords of the Admiralty are likely to adopt in the event of the Government deciding to place the Aerial Defence of the British Empire in the hands of an Imperial Air Service outside the control of Navy or Army.

One ventures mildly to suggest that their Lordships have never taken any violent interest in the R.N.A.S., and they cannot complain if an enlarged Air Service is placed outside their jurisdiction. If they do not like the new scheme it is always open to them to resign. One doubts if their doing so would necessarily result in our losing the war.

AN IMPORTANT TRADE SOCIETY.

Perhaps the most significant development of recent times in connection with the growth of the aircraft industry is the formation of the Society of British Aircraft Constructors, Ltd. It may be desirable accurately to record briefly the terms of the registration.

The company, which is limited by guarantee, comprises 100 members, each liable, in the event of winding up, for £5; and the objects are to encourage, promote, and protect the British aircraft industry, and to protect the general interests of companies, firms, and persons engaged therein.

The management is vested in a council, the first signatories being: Sir Vincent Caillard (a director of Vickers, Ltd., and the Wolseley Motor Car Co., Ltd.), Mr. R. O. Cary (manager of the Sopwith Aviation Co., Ltd.), Sir A. Trevor Dawson (of Wm. Beardmore and Co., Ltd.), Mr. H. White-Smith (British and Colonial Aeroplane Co., Ltd.), Mr. G. Holt Thomas (Aircraft Manufacturing Co., Ltd., and Gnome Engine Co., Ltd.), Major H. F. Wood (Vickers, Ltd.), Mr. Howard T. Wright (J. Samuel White and Co., Ltd.).

These members have power to add to their number, and the first meeting of the council on Thursday will be a most representative gathering. Practically every firm of standing in the industry has signified its approval of the objects of the Society, and the industry is to be congratulated on having decided to organise on what appear to be powerful lines.

Situations are constantly arising and problems calling for solution which can only be handled effectively by a combination which represents the aircraft industry completely and solely. The new Society will carry weight and speak with authority if the members of the council work harmoniously together for the common good.

Mr. C. V. Allen is acting as secretary *pro tem.*, and the offices are at St. Stephen's House, Victoria Embankment, S.W.

OUR COMPETENT AUTHORITIES.

It is officially announced that "the flying of kites has been prohibited at the parks and open spaces controlled by the London County Council, except when authorised by competent military authority."

One begins to wonder precisely what constitutes a competent military authority, especially in matters aeronautical. Competence has not been hitherto precisely the outstanding feature of the authorities concerned with military aeronautics.

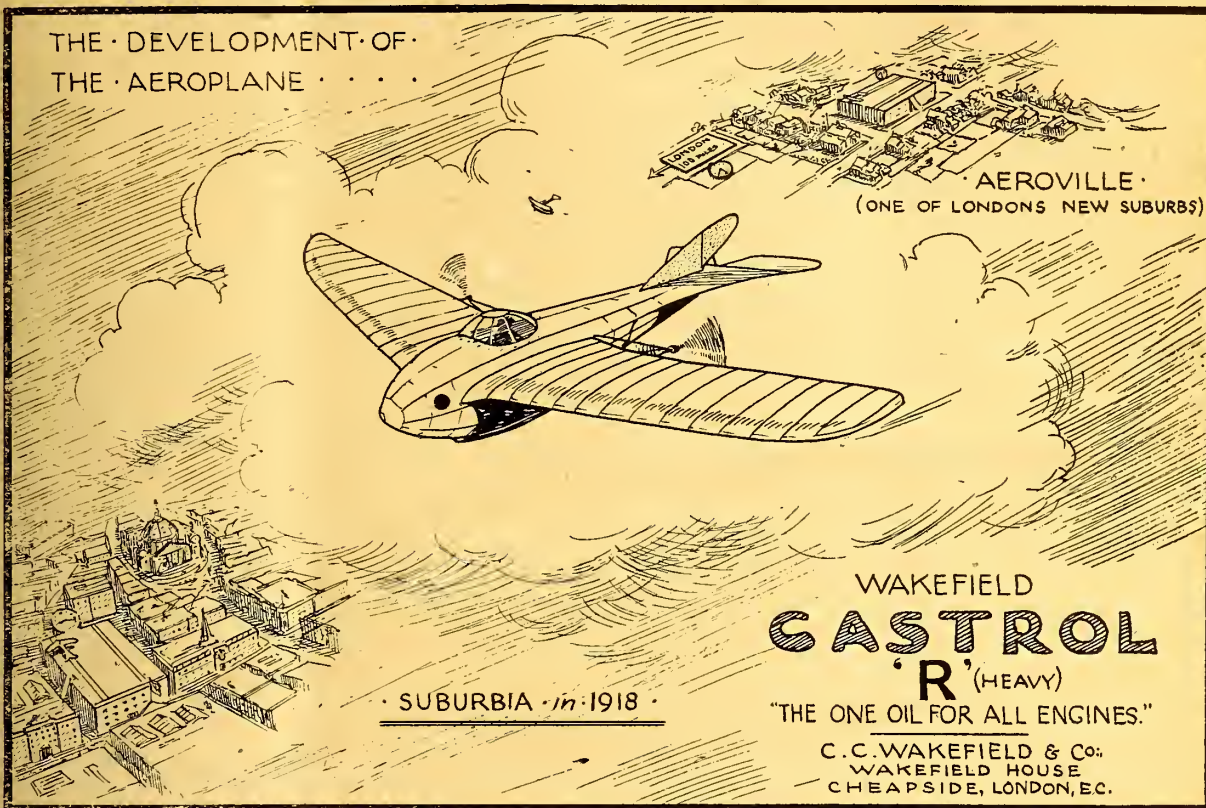
It may be, of course, that this order is issued to prevent interference with the progress of young gentlemen such as he who wandered over Covent Garden at 5.30 a.m. one day last week at the extreme altitude of 200 feet, or he who went up Shaftesbury Avenue one afternoon in the immediate proximity of the chimneys.

Incidentally one suggests that one of these reckless youths might put in for the prize offer by Burgoyne and Co.—the Australian wine people—for a flight across the Thames over Central London.

The order would be perfectly reasonable, however, if it merely prohibited kites with wire cables, or with cords of more than a certain thickness, for no string-controlled kite could go high enough to cause any damage to an aeroplane. Then small children could go on flying their kites in peace.

Children under six years of age applying for permission to fly kites are counselled to bring their nurses with them when calling at the War Office. It is possible, of course, that the necessary formalities may not be completed before the applicant is called upon to join his Group, and even then the Competent Authority may not have been discovered.

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THE INVASIONS OF ENGLAND.

It seems a little strange that the Zeppelin officially reported over the East Anglian Coast in the small hours of Tuesday, April 4th, should have dropped no bombs—or was it merely that they were not heard officially?

* * *

On April 5th, Field-Marshal Viscount French made a tour of several towns visited by Zeppelins on March 31st, and inspected the anti-aircraft batteries. At one town Lord French received a report that there a Zeppelin had been in difficulties and had sustained a heavy list to starboard, after which it veered round and headed away from London. It was not stated, apparently, how a Zeppelin could attain a lateral cant. The men of the battery are confident that it was there that the airship which later sank off the Thames received her damage. Others, the R.F.C. for example, are less confident. Lord French complimented the gunners on their "excellent practice," and expressed the pride he felt at their efficiency. It is not recorded whether he reminded them that "practice makes perfect."

Probably the crew of the Zeppelin can best confirm the confidence of the gun crew in question.

* * *

Apropos the loss of L.15, the "Lokalanzeiger" makes the following philosophic remarks:—

"It was to be expected that in the course of our attacks we would lose here and there one of our airships. We built these airships, not to stay at home, but to fight; and you cannot make an omelette without breaking eggs. We can only congratulate our gallant air fleet on the splendid success of this latest visit to England."

* * *

A News Agency report from Amsterdam dated April 6th says that three Zeppelins which raided England have been seriously damaged by the British coast batteries. Some people do have luck.

* * *

Persistent rumours exist that a Zeppelin was brought down off a North-East Coast town on Wednesday, April 5th, by an R.F.C. pilot who followed the raider out to sea. Possibly the War Office may be convinced of the action about the time when they have made up their minds whether an R.F.C. pilot sank a German seaplane at sea on March 19th.

* * *

The crew of a coal-carrying steamer which has reached the Tyne report having been chased by a Zeppelin during the weekend, April 1st-2nd, while off the East Coast. The Zeppelin, flying low, passed over the ship and dropped bombs, which just missed the vessel. British patrol ships arrived and the Zeppelin made off. The vessel was formerly German, and is a war prize.

* * *

The following telegram has been sent to the First Lord of the Admiralty by M. Blin-Desbled's self-styled "Aeronautical Institute":—

"Reference sunken Zeppelin L.15, which we are informed now lies in shallow water. It is thought by institute, after careful consideration, that, provided salvage work is supervised by persons intimately acquainted with and possessing thorough technical practice of Zeppelin construction, airship could be rescued and rebuilt. If, however, salvage work is undertaken by persons without such detailed knowledge, the risk of airship being altogether ruined and rendered absolutely useless is greatly increased. Institute considers that, provided immediately available services of a man with actual practice in Zeppelin construction is utilised, airship could be saved, rebuilt, and launched against enemy within three months, and institute is prepared to undertake, even at its own cost, work of saving. The work should, of course, be proceeded with at once, and to save delay we are wiring this telegram to Prime Minister and Secretary of War."

For cool impudence this telegram almost holds the war-record. One wonders whether the length of the telegram is intended to prove the financial capacity of the "Institute," or whether it is a so-to-say "sprat to catch a mackerel"—otherwise a "ballon d'essai" to catch a Zeppelin.

Doubtless the work has already been undertaken by the responsible authorities. Perhaps M. Desbleds would like to save the "Titanic." She might keep him usefully employed.

* * *

Since Friday, March 31st, 16 Zeppelins have crossed the coast of this country. On that day five Zeppelins came over and dropped 200 bombs. L.15 was brought down on that occasion. On Saturday, April 1st, one Zeppelin crossed the North-East Coast and another one turned back. On Sunday, April 2nd, six Zeppelins came over, three visiting the Scottish Coast, one the North-East Coast, and two the Eastern Counties of England. On Monday night, April 3rd, and Tuesday morning, April 4th, one Zeppelin cruised over East Anglia, and on Wednesday, April 5th, three Zeppelins paid a visit to the North-East Coast.

One has been sunk, and the authorities live in hopes that there may have been others hit. Doubtless our infantry wish that their attacks could be carried out with a casualty ratio of 1 in 16.

Permission has been obtained from the Home Office to issue an appeal for funds for the rebuilding of St. Augustine's Mission Church, Leytonstone, Essex, the first church in the Province of Canterbury to suffer from Zeppelins. The building had not been insured.

One cannot understand, however, how the authorities came to sanction the issue of such an appeal, seeing that it must indicate to the Germans the vicinity in which one of their bombs fell on some date unknown. Probably this was the church mistaken for St. Paul's, Ludgate Hill, by a Zeppelin skipper whose story was published in various London papers. By permitting publicity to the appeal the authorities have not only given away the strategic secret that St. Paul's Cathedral is not in Leytonstone, but that Leytonstone is in Essex. Moreover, they have destroyed the cherished illusions of the Zeppelin skipper, which was inconsiderate, and they have impugned the accuracy of the papers which published his story. It is really time someone agitated for a stricter and more intellectually gifted censorship.

* * *

The Mayor of Ramsgate has announced to the Council that further measures have been adopted for protection of East Coast towns against enemy raids. Meanwhile, the Mayor has arranged a flag day collection in aid of the Ramsgate Aerial Defence Fund.

The Mayor also announced that Mr. Tennant had promised an inquiry into the circumstances arising from the Ramsgate raid on Sunday, March 19th. It will probably be of a judicial character.

All of which has its unintentional humour.

* * *

A story current in London which enjoys considerable credence is to the effect that recently a Zeppelin hovered over a certain place in the Eastern Counties for a period of several days and nights.

It was said to have been coerced into this embarrassing situation by the proximity of a hedge of anti-aircraft guns. Apparently the anti-aircraft section could not remove the obstruction from the skyline for fear of bringing the Zeppelin down on a neighbouring powder factory. What finally happened to the maroon is unrecorded.

THE AWAKENING OF ENGLAND.

Speaking at Newcastle on April 8th, Mr. Pemberton-Billing, M.P., said it was foolish to suggest we should now build Zeppelins, for the Germans had taken ten years and spent 20 to 30 million pounds in producing a fleet capable of reaching England, and they possessed 98 per cent. of the aluminium in the world.

We possessed something far finer than Zeppelins, however, in the shape of the world's finest aeroplane. For six months a firm building that machine had clamoured for its inspection. Now only a small order had been given. [The reference is to the new Sopwiths.—Ed.] With the cost of three days' war we could produce enough aeroplanes to make us supreme, and who would deny that that would finish the war at least three months earlier? If the war lasted another year it would be decided in the air, and the raids we had seen would be nothing to those we would see.

In conversation with a man who arrived from Berlin only a few days ago, he was informed that, despite privations, the Germans were grimly determined to win at whatever cost. That being so, we must take off our gloves.

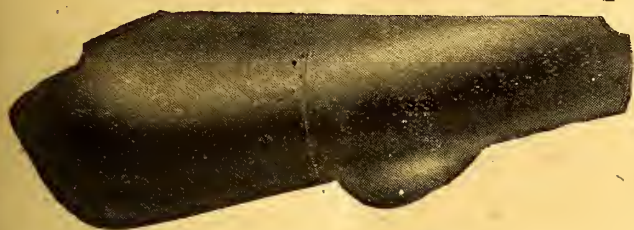
If the control of the Air Service were not under the thumb of politicians, or those who did not understand, he believed that in six months we might regain and be able to maintain the supremacy of the air.

Mr. Balfour in 1908 saw Wilbur Wright make the first flight in Europe, but he did not return and raise his powerful voice in favour of something being done. The wicked phrase "wait and see" would have been the most humorous thing in history but for the fact that it was responsible for the air inuddle and all the other muddles we had witnessed. For eight years and for 20 months of war the Government had ignored the motto that inspired the humblest Boy Scout—they were not prepared. Our heroic pilots, who had to use machines some of which were a disgrace to the country, had to pay the price for the work that was not done.

It was not very brave or fine for a man to get out of uniform in the middle of a war like this, and sometimes he felt it hit him rather directly to find himself among the gang of talkers in the House of Commons rather than in Flanders. He considered it as part of what he cared to call the sacrifice he had made for the Air Service. He had first been treated as a joke, but there was a tendency, if one commenced by despising our enemy, to finish by respecting him.

When he knew that dear friends were being sent into the air on machines which left them a very thin chance of coming back alive, while there were machines in existence on which they would have far greater hope of success, he did sometimes feel a little keen.

Speaking at Sunderland on Sunday, April 9th, Mr. Pemberton-Billing declared that the air was going to be far more difficult and expensive to control than the ocean, and its mastery of far greater importance to this country even than the command of the sea. By awakening us to the urgency of the question, he believed that Count Zeppelin had laid the foundation-stone of Great



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Britain's future supremacy in the air. We must obtain it now. We owed it to the Dominions and our Dependencies.

Speaking at Middlesbrough on April 10th, Mr. Pemberton-Billing said we owed it to our children to leave them supreme in the air, as our forefathers left us supreme on the ocean. In ten years' time a weak Air Service might mean that in a night we might cease to exist as a nation. Just as the speed of aeroplanes had leapt from 40 miles an hour to 117 in a few years, so it would quickly mount to 150 or 160 miles an hour, and there might be tens and hundreds of thousands of these machines in the possession of some other country than our own. Such a speed brought us very close to many European nations.

If our men applied to the production of aeroplanes the same amount of brains and the same amount of organisation as Mr. Henry Ford applied to automobiles in America eight years ago we could have a fleet of a hundred thousand machines in a year or two. It was possible to have ten thousand machines in from six to twelve months.

It was said he went to the House to turn out the Government. Well, if the Government stood between the people of England and the winning of the war it would have to go.

A General Election would be a very serious matter, but it was difficult sometimes when one looked on the Government Front Bench to say that a change would be regrettable.

He had been in the House on twelve occasions, and on such occasions he had felt ashamed of himself to think that he had got out of uniform in the middle of a war to join in such cackle.

CHANGE OF ADDRESS.

On and after the 17th inst the address of the Aviation Department of Vickers, Ltd., will be at Imperial Court, Basil Street, Knightsbridge, S.W., where all communications should be addressed.

THE A.S.C. LIST.

So many applications were received for the new monthly illustrated list of the Aircraft Supplies Company, referred to recently in THE AEROPLANE, that it promptly went out of print. Accordingly Mr. Mansfield has arranged to issue this week a special mid-April list, revised up to date. Those in the Aircraft Industry who are interested should send a postcard at once to the Aircraft Supplies Company, 17, John Street, Theobalds Road, mentioning this paper, and they will receive a copy in due course.

THE WEEK-END AT HENDON.

Another fine Saturday brought large numbers of visitors to Hendon Aerodrome, and they were rewarded by seeing one of the best flying exhibitions since the beginning of the war. The chief enclosure was well filled, the restaurant had more customers than the staff could feed, and many machines kept everyone amused and interested.

The main feature of the day was undoubtedly the remarkable exhibition given by Mr. Sidney Pickles on a Curtiss biplane. Accompanied by a passenger, as the megaphone says, he flew for an hour in highly acrobatic style. He looped almost incessantly—one tired of counting—and did scores of tail-glides and vertical banks, until many expressions of admiration were mingled with sympathy for his passenger. It was a highly entertaining performance, reflecting no little credit on the strength of the Curtiss, and was undertaken by Mr. Pickles, not for the amusement of the spectators or the discomfort of the passenger, but as a special test of the machine. A Curtiss that can emerge from such a performance without injury must be capable of almost anything.

After an hour's flight he came down, took over another machine, and ascended into the higher altitudes, accompanied by the same well-seasoned passenger. On this occasion the flight was an

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ordinary, straightforward test of the kind more usually carried out, and was uninteresting, contrasted with the previous one.

An Avro piloted by an officer also indulged in some looping, [He did various silly tricks, ending by scraping in over the megaphone stand just where the crowd was thickest. An engine failure at any time during the last minute of his flight must have caused a smash, probably in the crowd.—Ed.], and Mr. H. Hawker flew over from Brooklands on one of the latest Sopwiths, giving a very pretty exhibition of fast driving. Many of the familiar Hendon machines were out during the afternoon, and school-work and some "tickets" filled up the day.

It is regrettable, however, that so much flying takes place just over the public enclosures. Considering the relative cubic space over these enclosures and over the aerodrome proper, such pranks, besides being dangerous, seem utterly pointless. Why is it that pilots overlook the fact that trick flying is much better seen and better appreciated when they keep nearer to Mill Hill?

Some extra excitement occurred after tea, when a Caudron, returning from a visit to the other side of the aerodrome, charged into an inoffensive Grahame-White biplane which happened to be doing nothing at the time. The box-kite had much the worst of it, and sundry pupils who were awaiting their turns retired in tears to the bosoms of their families.

There was an even better attendance on Sunday, and again plenty of flying. The Grahame-White pilots were actively engaged, the L. and P. School was represented, and one or two Service machines were out.

Special exhibitions will be given on Friday, Saturday, Sunday, and Monday during Easter.—D. W. T.

SCHOOL REPORTS.

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Circuits: Messrs. Baragar, Eichelbrenner, Holman, and Sandys. Certificates were taken by Messrs. Grasset and Tanner.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors for the week: Messrs. Ed. Baumann, Felix Ruffy, Ami Baumann, Clarence Winchester, and Andre Thomsen.

Pupils with Instructor: Messrs. Winter, Hoskyns, Edgar, Westlake, Cuthbertson, Torres, Maya, Portela, J. B. Thomas, jun., Williams and Williams, Capt. Bailey.

Pupils doing straights or rolling alone: Messrs. Cox, Wood, Muspratt, Jones, Portela, Maya, and Baron D'Opstaal.

Pupils doing figures of eight or circuits alone: Baron D'Opstaal and A. W. Williams.

Certificate was taken by Sec. Lieut. A. W. Williams.

AT THE HALL FLYING SCHOOL.

Instructors: Messrs. H. F. Stevens, C. M. Hill, A. Chave.

The following pupils received instruction: Messrs. Cosgrave, Smith, Hooker, Roberts, Neal, Mahoney, Halliday, Chapman, Bennett, Taylor, Worswick, Osmond, Glegg, I.e. Grice, Gudger, Rayne, Robinson, Duncan, Dickson, Pennell, Nicolle, Dresser.

An excellent certificate was taken by Lieut. Cooke.

AT THE BEATTY SCHOOL.

Instructors for the week: Messrs. G. W. Beatty, W. Roche-Kelly, G. Virgilio, R. W. Kenworthy, L. L. King, A. E. Mitchell, H. Fawcett.

Pupils out during week: Messrs. Patterson, Parsons, Sellars, Jones, Lin, Monhom, Chang, Nan, Fong, Cuthbert, Barrow, Murdoch, Sellars, Martin, Knox, Smith, Phillips, Tjaarda Johnson, Brewerton, Stanley, Yam, Sing, Ching, Ping, Whitmore, Tow, Earl, Skeet, Dowding.

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Pupils doing straights: Messrs. Crawford, Evernden, Archer, Hay, Rimer, Moore, Ferris, Houba, Aldous, de Goussencourt, Pulford, and Dawson.

Pupils doing figures of eight or circuits alone: Messrs. Creaghan, Archer, Ferris, Jennings, and Villain XIII.

Certificate taken by Mr. A. Jennings.

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Pupils doing rolling: Messrs. C. Wilson, G. Mouton, Adamson, Kennedy, Barlow.

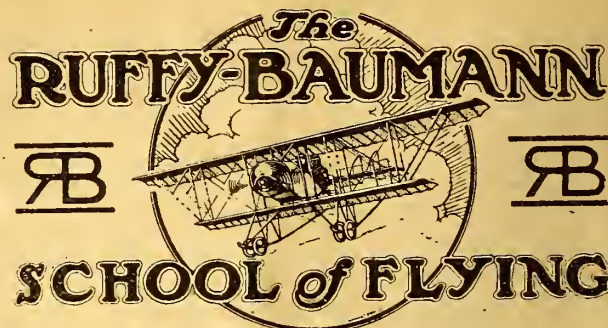
Pupils doing straights: Messrs. Smith, J. Wilson, Morley, W. Mouton, Morris.

Pupils doing half-circuits alone: Messrs. Morley, Devos, Dubois, Meeus.

Pupil doing figures of eight: M. Bonnevie.

Certificate was taken by Mr. Bonnevie.

Exhibition flights by Messrs. F. King and S. Summerfield.



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Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

TOUCHES AND ADJUSTMENTS TO THE BENZ.

Penitential routine, I believe, is largely essential to the making of our souls. The soul of an engineer, no doubt, among the rest, for none who has ever scraped a bearing will deny the penance or the routine. But it is a long turning that has no lane; and even the job of getting bearings to a pitch of truth that verges upon deception comes to an end some time.

So, all bearings and "brasses" being duly adjusted, get the upper half of the crank-chamber in place, over the pistons. Lock down with the bolts, and set home, working the crank-shaft round by hand until—judging solely by your own experience and skill as a fitter—all these parts are set evenly tight all round; the crank-shaft immovable except under lubrication. Anything short of this will mean knocking. Next get the cylinders on one by one. Set down on the foot flange bolts as in the best garage practice, working on every other bolt all round: the valves, of course, having been duly set in place, after their fit and seating has been established beforehand.

Next, all accessory parts may be attached, and the upper part of the valve gear replaced. After which the rest of the assembly resolves itself into the adjustment which has been already fully dealt with. But, do not forget that you will have to adjust the ignition from those magnetos in the right relation to an invisible cam-shaft that is hidden in an inaccessible crank-chamber—you see how automobile design works out at the critical finish.

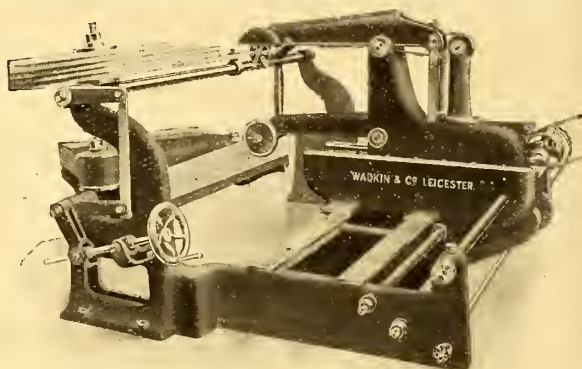
So you will wisely have scribed as you go—or as you went, as you took the motor down—the mark on its rear end parallel to the crank-shaft end; and a mark on the face of one tooth of one gear, in line with another from the corresponding space of the gear with which the former meshes. Lastly, complete the actual reassembly prior to final adjustments, by attaching all the water connections and the exhaust pipes or manifold. Then, the final adjustment as before. But . . . better luck, let us hope, than to have only broken tools to build with.

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not equally apply to the only other German motor that displayed much distinction in the way of results. before the war; this being the N.A.G. It had no distinction of design, at any rate; in fact, anything commoner to look at, less relieved by the slightest individual touch, could hardly be imagined; its one feature being that the induction to the four cylinders, No. 2 to No. 5, is effected through two branches, respectively, supplying pairs 2, 3 and 4, 5, from double mouths; in a sort of halfway imitation of the original Itala method; other two single branches serving Nos. 1 and 6.

This scheme is only carried out by using the very old device of placing the inlets of each pair together; and the consequent irregular cam-setting naturally imposes very uneven strains on the cam-shaft. Even so, the arrangement is nothing like so effective or symmetrical as that of the first Itala six-cylinder model, in which three two-way branches in all, served the cylinders in pairs, middle and ends, and so obtained a balanced cam-setting.

However, any clothes fit the naked; so we may admit even the sloppily-modelled N.A.G. induction to be short, direct, and thus effective enough; and the motor itself appears to have done tolerably well in various German machines. For though, according to those who used it, it gave nothing like the 150 h.p. claimed—when I give its measurements of 135 mm. by 160 mm., it is easy to work out what it might or should have given—it was capable of something between 120 and 130 h.p. on its day.

Otherwise it possesses no feature worth embodiment or repetition; and one on the other hand which experience, so far, has shown to be about the worst possible for an aeromotor: this being the combination of an automatically governed ignition—quite out of the pilot's control—with a variation of the early Wright arrangement of stopping the motor by holding the exhaust valve open. This, of course, put the ensuing carburation all wrong as soon as they were allowed to open and close again normally.

SUCCESSFUL MEDIOCRITY.

Again, the Hansa and Komnick people—comparative new-comers to the German motor-industry; in fact, Herr Komnick was a manufacturer of brickmaking machinery and similar products of precision and refinement six years ago—are said to be building lighter patterns of their very conventional car-models. Körting and Oechelhauser, too, in spite of their considerable, but still much exaggerated, reputation as builders of large marine engines, have failed badly in their essays in light motor practice. Indeed, judging from their efforts in two-stroke design—manifestly uninspired by the most elementary acquaintance with essential principles, and complicated at that—they deserved to fail.

(To be continued.)

A NEWCOMER.

A very welcome newcomer to the aeroplane industry is the well-known firm of Messrs. Salmons and Sons. Messrs. Salmons have been building motor-car bodies since the early days of motoring, and before that they were building carriages, the firm being established in the year 1810.

Needless to say, there are few firms better equipped for turning out large quantities of every description of woodwork for aeroplanes. The large factory is well equipped with the best machinery, and Mr. Salmons is fortunate in having both a very large quantity of suitable timber in stock and a large staff of first-class workmen to work it.

It must be clearly understood that this new departure of the firm is not merely an effort to keep things going while business is poor in the motor-car line. Mr. Salmons believes in the great future of the aeroplane industry, and intends that his aeroplane department shall rank at least equal in importance with his body-building department after the war, if, indeed, it does not ultimately overwhelm the latter department.

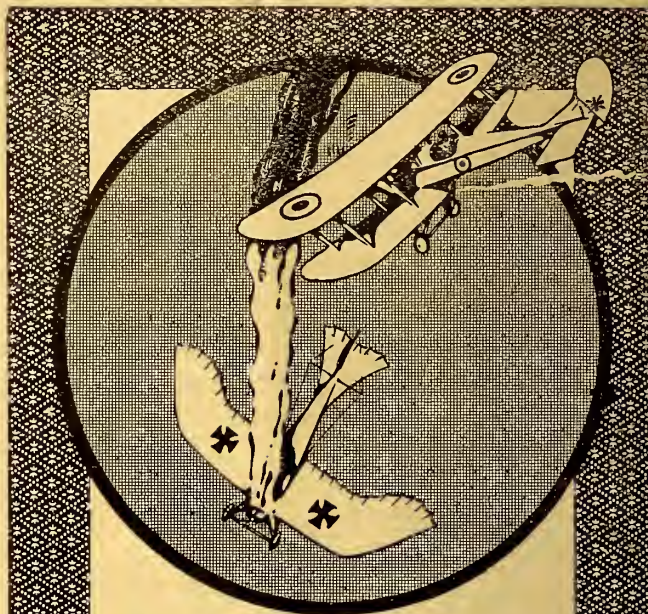
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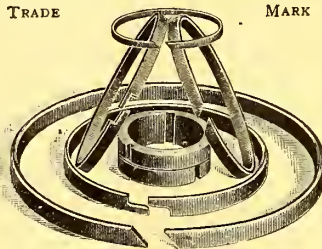
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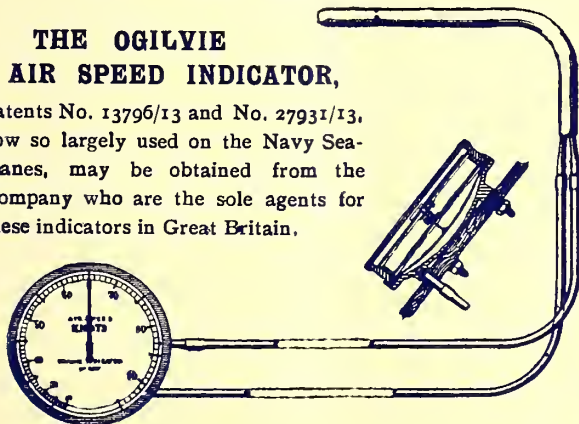
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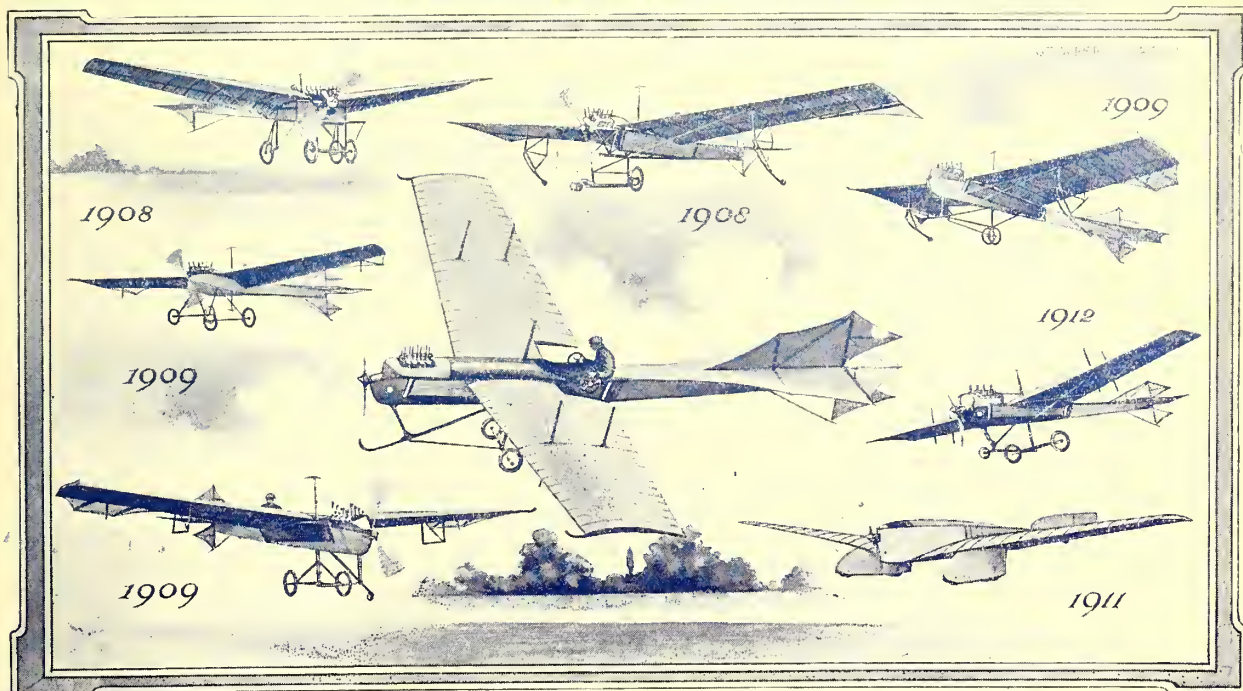
 Edited by
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Vol. X. No. 16

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ON MAKING HISTORY.

History in the making is always an interesting spectacle, but not many are privileged to enjoy it. Few are able to get contemporary events into the right perspective, seeing events as they do from the outside, and fewer still are sufficiently on the inside to see the wheels go round and perceive which are the driving cogs and which are mere idle pinions.

Most people are just so close to events that they cannot see the wood for the trees. Where politicians are concerned, it is not that lookers-on "see men as trees walking," but that wooden politicians pass for men, though they move or stay put where they are told, like a set of marionettes, at the bidding of the wire-pullers.

During the past week we have undoubtedly seen history being made, and not merely aeronautical history, for such is the importance of aerial defence and offence in these days that any important change in aeronautical matters affects very seriously the whole history of the country, and even of the world. If recent aeronautical happenings do not materially influence the course of history and mark an epoch in the development of aviation, then the fault is Mr. Asquith's, and not that of the Aerial Reform Party, for the Reformers have, in the words of the Marian martyr, "this day lighted such a candle in England as shall never be put out," unless the Cabinet deliberately extinguishes it.

Two schemes for an Imperial Air Service have been submitted to Mr. Asquith, one by Lord Montagu of Beaulieu and the other by the member for East Herts, Mr. Pemberton-Billing. I happen to have been privileged to know something of both schemes before they were made public, and there is practically nothing to choose between them in their general principles and outlines.

Lord Montagu's scheme, as it appears on paper, is less elaborate than Mr. Pemberton-Billing's, or, at any rate, it appears more in skeleton form; but that is probably because he wished it to be more easily comprehended by the mental capacity of the average Cabinet Minister. But no doubt Lord Montagu has all the machinery of his scheme ready to put into the framework as soon as it is required. Mr. Pemberton-Billing's scheme, as published in the "Daily Mail," and reproduced elsewhere in this paper, is also merely a synopsis of the very elaborate organisation which he has worked out, down to the most minute detail, for the proper running of an active Air Service, while leaving the Navy and Army to do as they like with such aircraft as they require for their own operations.

A MATTER OF DATES.

Which scheme antedates the other I could not venture to say. I know that Mr. Pemberton-Billing and I were arguing fiercely over such minor questions of his complete organisation as the titles to be given to the various ranks of officers in a new Air Service, and as to when, where, and what eagle badges were to be worn by pilots, just about the period when Lord Montagu was busy escaping death by drowning in the "Persia"—for

which escape this country has good cause to be thankful. And I have every reason to believe that Lord Montagu had his Air Service scheme fairly well worked out before he started for India. Therefore it seems that the ideas of these two gentlemen synchronised most curiously, and as the two schemes were drawn up quite independently of one another, it is still more curious that they should be so remarkably alike.

One could scarcely wish for more conclusive evidence of the soundness of the two schemes, for while Lord Montagu's experience of active service aviation has been entirely with the R.F.C., and while nearly all his friends among flying people are R.F.C. officers, Mr. Pemberton-Billing has been on active service as an R.N.A.S. officer, all his staff service at home has been with the R.N.A.S., and he scarcely knows any R.F.C. officers to speak to. The mere fact that two men with such intensely active brains of such entirely different types should arrive at practically the same scheme from two such utterly separate and widely different starting points as the R.F.C. and the R.N.A.S. seems as good a proof as one could wish that the scheme is worth putting into practice without delay.

If and when an Imperial Air Service is formed on the basis of that scheme, a distinct step forward will have been made in history.

REORGANISATION.

Many of the best officers in both the existing Flying Services realise that a third Service is inevitable, and that the only real difficulty is the transition from the present system to the new one.

Sailors will always remain sailors, and soldiers will always remain soldiers. That much is clear. Also, reorganisation is needed in the R.N.A.S. and R.F.C. before those two Services can do full justice to the needs of the Navy and Army, without tackling the bigger job of aerial defensive and offensive operations.

Such reorganisation is already taking place, as may be seen from appointments already made public.

As stated some weeks ago, Admiral Vaughan Lee has already done much to strengthen the administration of the R.N.A.S. The appointment of Commodore Godfrey Paine to take entire charge of the training of personnel is a choice which could not be bettered. And the appointments of sundry somewhat more junior officers who have had long experience of aviation, and who have been on active service ever since the beginning of the war, to positions of responsibility at the Admiralty augur well for internal improvements.

Similarly the appointments of General Brancker to be a Director at the War Office, and of Colonel Charlton to be a Staff Officer, First Grade, are equally promising for the R.F.C. The output of aeroplanes was never so well handled as when General Brancker was in charge of this department, at the time when General Henderson was commanding the R.F.C. in France, and the experience

General Brancker has had since then on active service should make him even more valuable now that he has returned.

Colonel Charlton is regarded by the R.F.C. in general as a thoroughly practical officer, with extensive personal knowledge both of aeroplane construction and of active-service conditions. Also, he is highly esteemed by officers and men alike. Given anything like a free hand, these officers should soon effect notable improvements. Be it said that I do not know either of these officers personally, and I base my opinions on those of many officers who have served with them or under them, which is always the best way of ascertaining accurately the worth of any man.

For these reasons one may feel optimistic as to the future of aviation as it immediately concerns the two older Services

THE I.A.S.

As to the I.A.S., or Imperial Air Service, it is known that several important members of the Cabinet are favourable to the scheme submitted, but the great danger is in unnecessary delay through Mr. Asquith's constitutional inability to make up his mind, or his fear of making a definite decision, or his professional dislike of giving a straight answer—whichever may be the basic reason for his habitual state of mental wobbliness.

It is also known that Lord Sydenham, whose opinion is worth more than the opinions of the whole Cabinet, is in favour of the third Service—and I am not basing this statement merely on his written articles, such as the one published in this paper recently.

THE CHRONIC OPPOSITION.

There is, however, certain opposition to be overcome. Lord Montagu made it quite clear, in his speech at Birmingham, which is published elsewhere in this paper, that the Lords of the Admiralty regard all matters of aerial offence and defence as their special business, and that they threaten to resign in a body if the Cabinet takes this new toy away from them.

Whether anyone would be greatly perturbed by their resignation is a matter which is easily discussed. Lord Fisher and Mr. Churchill, both greater men in their way than any of their present Lordships, have left the Admiralty during the war, yet the Fleet has not showed any particular desire to haul down its flag to the German Navy, so that one is not terrified by the prospect of losing Mr. Balfour and a few Sea Lords, who are, after all, the relict of Mr. Churchill.

Hitherto their Lordships have shown no violent interest in the R.N.A.S. Whether hindered by religious scruples or not, they have not encouraged the advocates of reprisals or of retaliation on Germany. His Financial Lordship has not been particularly acute in checking hare-brained expenditure on R.N.A.S. "side-shows," such as armoured cars and motor-boats, nor has he been open-handed in permitting regular and prompt payment to aircraft manufacturers when money has been required for the legitimate equipment of the R.N.A.S. with aeroplanes, kite-balloons, and airships, so one assumes that he has not had any intense personal feeling on the subject of an Air Service.

In fact, so far as their Lordships are concerned, it would appear as if they strongly resemble a spoilt child which neglects a toy till someone threatens to take it away and give it to some other little child who is less well provided.

The simile is not perhaps inapt, for the Navy has always been the spoilt child of the British nation. Whenever the Navy has wanted money, ships, or men, they have almost always been given it without a murmur. On the one occasion when it was grudged more Dreadnoughts, it kicked, and inspired its little friends at Croydon (not Peckham, as I once said erroneously)

to scream, "We want eight and we won't wait!" And it was not kept waiting.

But whoever heard anybody screaming for more men or more guns for the Army? The Army has always been the neglected infant, and we are now suffering for it. I only pray that the spoiled child may not have deteriorated through easy feeding, and that when the pinch comes it may be as well able to stand up to its adversary as has the Army, starved and neglected though it has been.

THE ARMY'S IDEA.

It appears that the Army, as a whole, rather approves of the Imperial Air Service scheme, for some strange reason. Possibly it is because the soldier knows his job and sticks to it, and believes in other people doing the jobs they know best. Consequently, he does not aspire to be a "handy man" or a "jack of all trades" of any kind—which is really rather a sound view.

Consequently, there is not much opposition to be expected from the Army, which will be perfectly happy with an R.F.C. expanded to fulfil all calls upon it for legitimate Army work. The only fear is that some of the people who are not wanted by the Army—for doubtless excellent reasons—may try to foist themselves onto the I.A.S., as an easy way of exalting themselves.

JOIN FORCES.

However, it is quite evident that to make a success of the I.A.S. there must be a fusion, and not a confusion, of interests. Lord Montagu's quiet and convincing arguments, coupled with his strong position as an active member of the House of Lords—a position made ten times stronger by his resignation from that farcical affair the Joint Air Committee, which was never anything but an inept attempt at eyewash—should be directly allied with Mr. Pemberton-Billing's forcefulness and astonishing organising powers.

Each convinces a different type of person. Independently they probably influence between them the majority of the electors of Great Britain. In alliance they would certainly do so, for they would bring in many thousands of nice, "genteel," middle-class voters who are not quite sure whether Lord Montagu is sufficiently outspoken and determined, or whether Mr. Pemberton-Billing is sufficiently respectable.

There should be direct co-operation between the two parties—if one may use such a discredited term for the sections of the great Aerial Reform Party. Neither should think that the other is out to steal its thunder. They should pool their information—or ammunition—and each use it where it will tell most effectively.

The peer who has defied the Cabinet by resigning from the Joint Committee and telling all about it afterwards, and the commoner who has twice beaten the Coalition voting machine, at Mile End and at Hertford, could themselves form a coalition which would get everything it wanted just because the Cabinet is already so thoroughly afraid of them separately.

WHAT OF LORD NORTHCLIFFE?

There remains Lord Northcliffe's place in the scheme. I am convinced that, whatever may be his faults, Lord Northcliffe is absolutely single-minded in his determination to win this war—or, in the Army's blunt phrase, "to kill Huns"—which is more than one would care to say about many prominent politicians, for the "Unseen Hand," at which those in close touch with politics hint so vaguely and so frequently, almost becomes visible in some cases.

Lord Northcliffe has done more than any one other man to help to win the war, and he is to-day the strongest man in England. But the mere immensity of his task hampers him and prevents him from tackling any one section of it in detail and with full knowledge.

Moreover, like many a good general, Lord Northcliffe

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is badly served by his staff. Whether it is that the right men cannot be found, or that he has not the faculty for delegating duties, I do not profess to guess; but if one confines one's recollections to aviation alone one cannot but be struck by the difference between Lord Northcliffe's own excellent ideas and the way in which they were written up by his underlings.

The only word which describes the bulk of the stuff they wrote on aviation and aeroplanes is "tosh." Their matter was tosh and their style was toshy. The men themselves always gave one the impression that they were merely "turned on," like a tap, to write about "airmanship"—as they were pleased to miscall their subject. They seldom understood what they were writing about, and they seldom seemed to care. They were not keen. They wrote with their tongues in their cheeks, secure in the fact that whatever tosh they wrote the public would accept it.

Mind you, all other papers were as bad, for outside Mr. C. C. Turner and Mr. Massac-Buist I have never met an English journalist who really understood anything about flying.

All this toshery weakened Lord Northcliffe's influence with those who count seriously in British aviation, and it shows the greatness of the man that he succeeded, in spite of it all, in doing greater service to aviation than anyone else. Yet, if he had been well served, he might have done so much more. The recent incident at Dover is a case in point.

If, instead of "booming" aviation, he had quietly assumed that aeroplanes were of as much interest as horse-racing, and had treated them in precisely the same way, he would have succeeded with a policy of peaceful penetration into the thick English head. As it was, his underlings "boomed" the "Daily Mail" prizes for a short period, and a relapse inevitably followed every boom.

AN ELEMENTAL FACT.

Some day Lord Northcliffe will discover a fact only discovered hitherto by the editor of the late lamented "Tribune"—which failed through bad business management, though it was by far the best paper ever published in the English language. That fact is that the best paper can only be run by the best people. In other words, it would pay to staff a paper from top to bottom with educated gentlemen, university or public school

men, each keen on his own particular section, and each a sportsman with a sense of humour. Such men would know their subject, they would write the King's English, and they would be sincere in what they wrote. All of which would be very different from the kind of stuff which the ordinary Fleet Streeter turns out, whether for Lord Northcliffe or anybody else, for such men are merely remarkable for their uniform ignorance and incompetence on all possible subjects.

Probably the view of the ordinary person who edits a newspaper is that such men would write over the heads of their readers. Nothing is less possible. What the everyday editor forgets is that the "people" will always take the best if they can get it; if not, they will take the cheapest. What they will not stand is the merely would-be clever or "precious." A mob will applaud Wagner and Liszt, or they will take "Pomp and Circumstance" and "Keep the Home Fires Burning" at the other end of the scale; but they will not stand Cyril Scott or even Debussy—near as the latter comes to being great. Similarly, the crowd will read Mr. Rudyard Kipling or Charles Garvice, but they will not read Henry James, and Mr. Kipling is the greater power.

Now, if Lord Northcliffe would grasp this fact and act accordingly he might be a very much greater power even than he is now. Tosh sells, but it carries little weight. Sincere good writing sells and influences as well.

THE GREAT DANGER.

The danger to the Imperial Air Service is that Lord Northcliffe's underlings may boom it up to a point, and that there may be a bad relapse afterwards, if they are left to themselves while Lord Northcliffe is personally busy with something else. Over-booming is always bad. Hitherto Lord Northcliffe's booms have done well for the nation. He got machine-guns and shells and some younger generals for the Army. Now he is certainly getting aircraft. But no one now hears or reads much about machine-guns and shells or generals.

Aircraft must be treated differently from his other booms. It will not do to arouse a frenzy of enthusiasm and then drop the subject, for if he does so a revulsion of feeling will follow. We must look forward to the creation of a great Service, and not merely to booming an emergency force for present requirements.

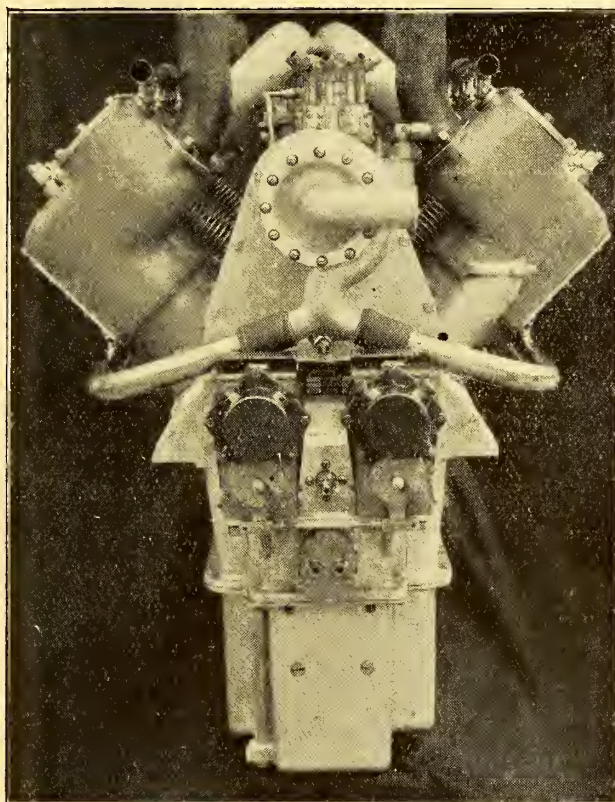
We cannot win the war by aircraft alone. Other forms of mechanism may be even more important. One other



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is at least equally important if the War Office only had the intelligence to grasp the fact and handle it properly. And the success of this other mechanism would, in fact, increase the usefulness of aircraft and the need for aircraft. Unfortunately it, like aircraft in the early days of flying, is in the hands of earnest and honest but somewhat incompetent people, and I fully expect the Germans to "get there first."

We cannot win the war by aircraft alone. Therefore it is a strategic error to over-boom aircraft or to treat them other than sincerely and soberly in the Press. Aircraft can influence the winning of the war, and thus they can make history. They can force the Germans to withdraw men and guns from the front to meet great raids over German towns. They can hold up traffic and supplies much as Zeppelins do in this country, only more so. They can produce immense moral effect, for the appearance of Allied aircraft over the interior of Germany would indicate the ascendancy of the Allies in the air and their moral dominance on land and sea.

AIRCRAFT IN THE HOUSE.

On April 11th Mr. Hogge asked the Under-Secretary of State for War whether anti-aircraft defences extend to Scotland; and whether they are considered adequate?

Mr. Tennant: I answered yesterday a question put by my hon. Friend with reference to the Firth of Forth. To-day he puts the same question in regard to Scotland as a whole, and I am able to give him the same answer as I gave him yesterday, which I am sure he will consider satisfactory.

Mr. Pringle: Could my right hon. Friend say whether any measures have been taken with regard to important points on the West of Scotland?

Mr. Tennant: I have made it a rule—I think my hon. Friend will agree it is a good one—not to make any statement about definite points.

CIVILIAN SCHOOLS OF AVIATION.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether the principals and instructors of the civilian schools of aviation, who are doing work in the making and training of pilots, are being called up under the Military Service Act, 1916; do the War Office realise the value of these training establishments; and, if so, will he give an assurance that the position of these schools will be assured and action taken by the Government to enable them to continue their national work?

Mr. Tennant: Principals and instructors of civilian schools of aviation will be called up under the Military Service Act and where possible placed in the Royal Flying Corps, if unmarried and not attested, unless they have received certificates of exemption, or have applied for exemption to a local tribunal.

Mr. Pemberton-Billing: Does the right hon. Gentleman refuse to give an assurance to these civilians that they and the good work they are doing shall be recognised? Could they not be given some assurance in carrying on this work, which is of great value to the country at the present time?

Mr. Tennant: It depends upon the value of the work being done. If it can be proved that they are doing good work, then I can give the hon. Gentleman the assurance for which he asks.

Mr. Pemberton-Billing: The returns of the private schools for the last twelve months compare very favourably—[Interruption.]

[It appears that the Government and its followers refuse to give fair play to anything concerned with aircraft.]

EAST COAST DEFENCES.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether he has made inquiries and satisfied himself of the truth of the allegations respecting a dummy gun erected on the roof of a foundry in an East Coast city; has he discovered the name of the firm on whose premises the gun was set up; has he been informed of the material used in its manufacture; does he know where it was made; can he inform the House when it was removed and where it was burnt; can he give the number of soldiers who were told off to guard the gun during the time it was employed by the military; who was responsible for this hoax; and can he give the assurance that such a practice will not be repeated?

Mr. Tennant: The hon. Gentleman has, presumably, in the course of his experience, heard of "ruses de guerre." The object of such measures is to deceive the enemy, and if such a measure has been resorted to in this country its objects would be to mislead the enemy's air scouts or agents and not to hoax the civil population. Perhaps the hon. Gentleman will permit me to say that it is not always in the interests of the country to tear aside the veil.

But they cannot win this war, for only an Army of Occupation can end a war, and that end cannot come till one side or the other breaks the trench line.

That may end the war. Or there may be a patched-up peace, in which case the Imperial Air Service will be more important than ever. Or the war may be ended by bubonic or pneumonic plague, started in Turkey, where it is endemic, running through the exhausted soldiery in the Balkans, Hungary, and Poland, and so across Europe, and being communicated by the swarming trench rats to our own troops in France. Which is quite likely, and is very good reason for getting to work to finish the war by killing Huns, with all possible despatch and efficiency.

Meantime, let us go ahead with our Imperial Air Service. There is still much to be done by Lord Montagu, Lord Northcliffe, and Mr. Pemberton-Billing alike. One hopes that their alliance may be whole-hearted, and that they may make history together in future as they have done separately in the past.—C. G. G.

Mr. Pemberton-Billing: Will the right hon. Gentleman assure the House that once this trick of war has been exposed they will refrain from carrying it out again?

Mr. MacVeagh: Does it help to deceive the enemy to have these discussions on the floor of the House?

[It is better to "tear aside the veil" than to humbug the people into a false sense of security.]

ANTI-AIRCRAFT GUN OFFICERS.

Mr. Pemberton-Billing asked the Under-Secretary for War whether, on the occasion of last Sunday's raid, a Zeppelin passed on two occasions within easy range of an anti-aircraft gun stationed in an Eastern county; if so, why was the gun not fired; why was no official warning given to the officer in command; and whether an officer is left without any discretion as to when he shall fire?

Mr. Tennant: The Army Council are addressing to the hon. Member a letter inviting him to furnish particulars of the time and place at which the incidents mentioned are believed to have occurred.

JOINT WAR AIR COMMITTEE.

Mr. Pemberton-Billing asked the Under-Secretary for War whether he is yet aware that friction has arisen among the members of the Joint War Air Committee recently appointed by the Government; whether he is aware that the disputes and delays which have resulted have arrested all hope of progress; and can he say whether any members of the Committee have declared to their colleagues their intention to resign?

Mr. Tennant: There are, of course, differences of opinion, but no friction whatever exists between members of the Joint Air Committee. I understand that two members have resigned.

UPAVON AVIATION GROUND.

Mr. Brookes asked on how many days flying was possible at Upavon in February and March; and whether he has considered the advisability of less exposed training grounds for aviation purposes?

Mr. Tennant: The answer to the first part of the question is seventeen and twenty-six; and to the second part that many other training grounds are now in use.

FUTURE NATIONAL POLICY.

Mr. Brookes asked the Prime Minister whether the Cabinet has considered the future air policy of the country as a whole, apart from the requirements of either the Army or the Navy; and, if so, what decision has been arrived at?

The Prime Minister (Mr. Asquith): I cannot agree with my hon. Friend that it is possible to consider this problem "apart from the requirements of the Army and Navy." His Majesty's Government give, as is their duty, constant attention to this as to all other problems arising out of the War.

[Both remarkably silly questions. The Upavon aerodrome is now one of the best in the country. Shelter by hills is dangerous, and "exposure" in this case means clear undisturbed air.]

JOINT WAR AIR COMMITTEE.

At the close of the Debate on April 11th Mr. Pemberton-Billing said: I should like to call the attention of this House to the resignation of Lord Derby and Lord Montagu from the Joint War Air Committee. I should like to ask whether any importance is attached to these resignations. Some few weeks ago, when the country was exceedingly agitated, and justly so, with regard to the condition of our Air Services, the Government decided that some step was necessary, and instead of appointing a Board with power to deal with the position, they chose to appoint a Committee, which I understand had no power whatsoever. They answered the



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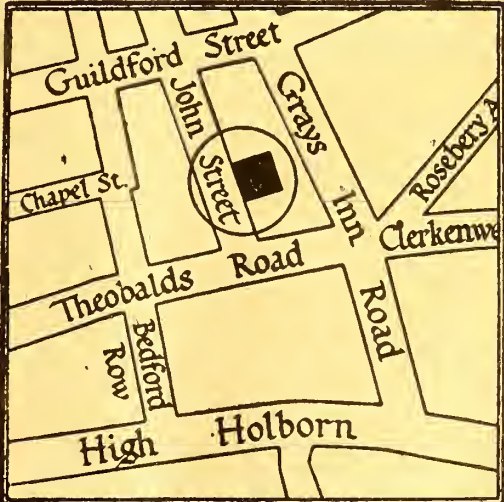
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public clamour at that time by offering to them the name of Lord Derby. I understood that the Government attached a very great deal of importance to this appointment, and it was inferred that now the appointment had been made there would be a complete and satisfactory inquiry; that the complaints which had been made both in this House and outside would be given full and careful attention, and that the matter of our Air Services would be straightened out.

Shortly after that time Lord Montagu, in the House of Lords, criticised our Air Services to some considerable extent, and, if I may be permitted to say so, he did it most ably. Shortly after that he was asked to join the Board. He did so, and the public felt that now Lord Montagu and Lord Derby were both taking a careful and an intelligent interest in the work of our Air Services, something would be done.

It will be remembered that a very similar incident happened when the citizens of London resented most fearfully the raid over this City. On that occasion Sir Percy Scott was appointed. Sir Percy Scott has resigned, and I understand that both Lord Derby and Lord Montagu have resigned. I really think I am echoing the voice of the majority of the people of these islands when I ask the Prime Minister what he proposes to do?

Does he propose to offer yet another name to the public? Does he propose to further postpone this very necessary and very urgent inquiry into the actual position of our Air Services, or does he propose to grant the Debate which was promised a considerable number of weeks ago?

I regret having had to take up, as I have done since my somewhat recent entry into this House, so much of its time on the subject of this air problem, but when one considers the indignity to which the country is subjected, and the danger to which its citizens have been subjected in recent air raids, when one thinks it is only the good offices of the moon which are protecting us this night, and which will protect us for the next few nights, I hold that some sort of attention other than flinging names to the public, other than the giving of promises which have no foundation, should be paid to the matter by this House.

On the question of the protection which some of our cities have been afforded I do not propose to dwell now. I am satisfied that to put up wooden guns in our towns, as a protection against Zeppelin raids, is as stupid and as foolish as it is expensive. If a wooden gun is put up and no Zeppelin comes, no useful purpose has been served. If a wooden gun is put up and a Zeppelin does come, the futility of the effort is immediately exposed and an angry and indignant public surrounds that gun while the Zeppelin sails off in safety. What useful purpose can be served by it? If you think for one moment that the German spy system in our country is so lax that it is not well aware when a wooden gun is mounted and when a service gun is mounted, it shows a considerable lack of appreciation by Ministers on the Front Bench of the actual position of the German spy system.

As far as this Committee is concerned, I would ask the Prime Minister to stop this fooling, to abolish this Committee, and to appoint in its place a board with powers to act, to try to inquire into all the allegations which I have brought against the services and the conduct of these services, and not to constantly postpone and put it off until the general interest will have evaporated, or at least they hope so, but to immediately grasp this nettle and get on with the business—get on with the question of developing our Air Services, which, undoubtedly, if not of the very greatest

importance to-day, will be of very considerable importance in the immediate future.

I consider that the Government have fooled with this question long enough, and that the public are right in demanding an immediate inquiry. I do not think that the joy bells of Berlin will ring so loudly when they see us taking this air menace seriously as they will if they see us continuing to fool with it as we have been going up to now.

I ask that the inquiry which the Under-Secretary of State for War promised me the Prime Minister will attend to shall be attended to. The time for further talk across this floor on the question of the Air Service is almost at an end, unless some definite action can be taken. We have plenty of aeroplanes in this country to act. I was promised in this House the other evening that I should be asked to advise, to act, to organise, and, if necessary, to lead some definite action against our enemies. Since then I have heard nothing further. Valuable days are being wasted.

I protest most fiercely against the total indifference, the regrettable indifference, and the insult which the Government is offering the people in the way they are dealing with the question not only of the air defence of our country but of the air war generally, so far as it has reference to the progress which our enemies are making in the air compared with the efforts we are making. I would ask the Prime Minister if he cannot see his way clear to give a day before the Easter Recess for the discussion of this question, to appoint a board, if necessary, that has the power of immediate action, and I ask whether, in the opinion of this House, this air question is going to remain one purely of discussion—if the opinion of the country as expressed both by the Press, by public meetings, and public expressions throughout the country of general dissatisfaction at the apathy of our Government on the question of this Air Service is not justified?

Mr. Rea (Lord of the Treasury): So far as I am able to ascertain, no notice has been given to any of the usual representatives of the Government that this question was going to be raised. Of course, I am aware that the hon. Member is a new Member of this House and is, perhaps, not aware that according to, I will not say the customs, but at any rate the courtesies of this House, it is the rule to let it be known that a subject is going to be raised, in which case I can assure the hon. Member that the Minister responsible will be present in his place.

Mr. Hogge: Not always!

[As Mr. Pemberton-Billing remarked later, "Better an empty house than a bad tenant."]

Mr. Rea: Notice has not been given that this question was going to be raised to-night, therefore I can only say that I regret that in the circumstances it is not possible to offer the hon. Member to-night the reply he desires.

ZEPPELIN L15 (TREATMENT OF PRISONERS).

On April 13th **Mr. Pemberton-Billing** asked the Prime Minister whether the officers and crew captured from the Zeppelin which foundered in the estuary of the Thames are regarded other than as ordinary prisoners of war; and, if so, what reason can be adduced for differential treatment?

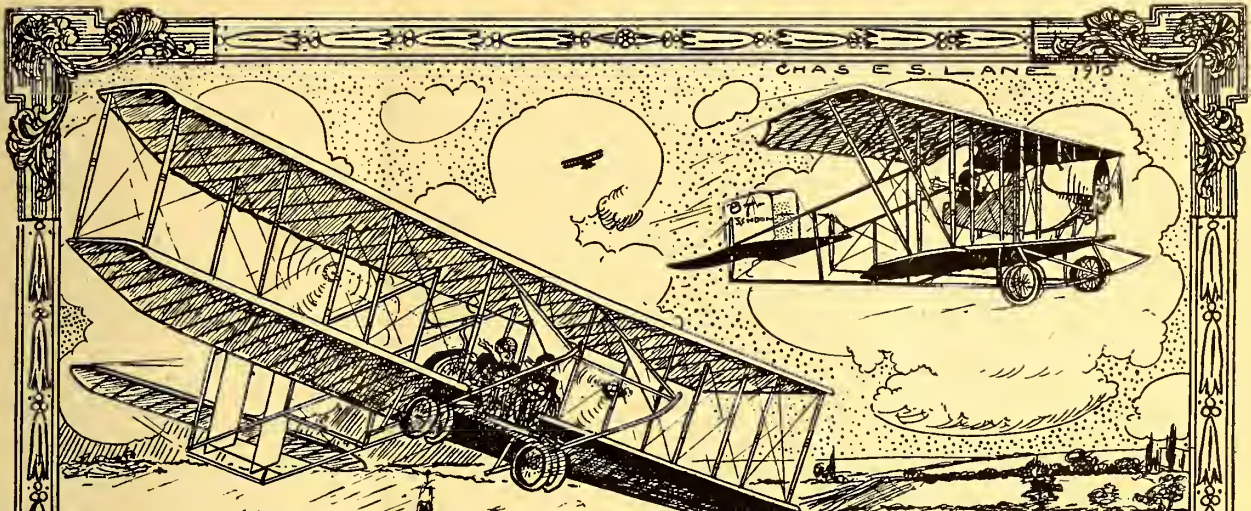
Mr. Tennant: The officers and crew captured from the Zeppelin are regarded and treated precisely as other prisoners of war.

ENEMY RAIDS.

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether, in view of the conflict of opinion as to the duties



The famous Fokker pilot, Lieut. Immelmann. The photograph is one issued officially in Germany, and it may be noticed how the front of the Fokker monoplane has been disguised by re-touching.



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and responsibilities of officers commanding anti-aircraft guns, he will state as far as is consistent with the public interest the nature of the orders under which they act and who is responsible in the event of failure, to give the order to fire?

Mr. Tennant: There is no conflict of opinion as to the duties of officers commanding anti-aircraft guns. The nature of the orders under which these officers act cannot in the interest of the public be made known, except to say that all officers in charge of guns have the most stringent orders to fire at hostile aircraft whenever they have any chance of hitting them. In the event of an anti-aircraft gun failing to fire, the officer in charge of the gun is alone responsible.

Mr. Pemberton-Billing asked the Prime Minister whether it is with the sanction of the Government that the actual number of deaths from Zeppelin raids has been withheld from the public; and can he give an assurance that in future there shall be no attempt to conceal the total casualties?

The Prime Minister: The numbers of deaths from Zeppelin raids have never been concealed. The exact figures are carefully collected by the police and are published in full. The numbers are often increased by deaths from wounds, and in such cases revised figures are published. I must express my surprise that the hon. Member should have thought fit to make the allegation contained in the first part of the question.

Mr. Pemberton-Billing: Does the right hon. Gentleman wish me to state to this House the facts upon which this question is based?

The Prime Minister: I have given my answer.

JOINT WAR AIR COMMITTEE.

Mr. King asked the Prime Minister whether he can give any information concerning the resignations of the Earl of Derby and Lord Montagu of Beaulieu from the Joint Air Committee; whether the Committee still continues its labours; and whether appointments have been made to replace the members who have resigned?

Mr. Pemberton-Billing asked the Prime Minister (1) whether, in resigning their positions on the Joint War Air Committee, Lord Derby as Chairman and Lord Montagu as a member of that

Committee have put forward any practical proposals for making such a Committee an effective instrument; if so, can he see his way to putting those proposals before the House of Commons so that Members may have an opportunity of discussing them before the Easter Recess; (2) whether he has been informed of the reasons for the resignations of Lord Derby and Lord Montagu from the Joint War Air Committee; and, in view of the public interest in the matter, can he see his way to communicate those reasons to the House; and (3) whether he is aware that, owing to the recent resignations from the Joint War Air Committee, the work of the Committee has been brought to a standstill; and will he now disband that Committee and seek to establish some body which shall have real power and responsibility in the effective organisation of our Air Services for offence and defence?

The Prime Minister: All aspects of this question are at present under consideration, and I hope to make a statement on the subject early next week.

Mr. Pemberton-Billing: Does the right hon. Gentleman propose to make any statement that will enlighten the public before the House adjourns?

The Prime Minister: I hope that it will enlighten the public. [It will be noted that the reply is not an answer to the question.]

COMMITTEE OF INQUIRY.

Mr. Pemberton-Billing asked the Prime Minister whether, in view of the public anxiety as to the condition of the Air Services, he can now make an announcement as to the nature and scope of the inquiry into the allegations of the Member for East Herts?

The Prime Minister: The terms of reference to the Committee of Inquiry will be as follows: To inquire into and report upon the administration and command of the Royal Flying Corps, with particular reference to the charges made, both in Parliament and elsewhere, against the officials and officers responsible for that administration and command, and to make any recommendations in relation thereto. The names of the Committee will be announced as soon as possible.

Mr. Pemberton-Billing: Can the right hon. Gentleman state when this inquiry is likely to take place?

The Prime Minister: With all possible promptitude.

Lord Montagu's Confession of Faith.

The announcements made by Lord Montagu of Beaulieu at Birmingham on April 12th deserve to be fully recorded, for the occasion is historic. The verbatim portion of the following account is taken, with due acknowledgment, from the "Times," which published a very full report. It is curious that so many papers, especially the "Morning Post," treated the speech as if it were a mere lecture on aviation, and not a political occasion of very great importance to the Empire.

The hall of the Midland Institute was packed with people, and to one who knows industrial England rather intimately it was very significant that the audience consisted entirely of typical well-to-do business-men, representing the financial backbone of the country. There was nothing of the ordinary lecture-audience about them. It shows how keenly the hard-headed Midland manufacturer feels on the subject of air defence when some hundreds of him will leave their work for a couple of hours in the afternoon to listen to the announcement of a scheme for the improvement of a service which he now realises is vital to his welfare.

The Lord Mayor of Birmingham (Alderman Neville Chamberlain, son of the late Mr. Joseph Chamberlain) was in the chair, and among those present were Mr. Jesse Collings, M.P., Brig.-Gen. Townley, Brig.-Gen. Sir John Barnsley, Rear-Admiral Grant-Dalton, Sir Oliver Lodge, and the mayors of many Midland towns.

The Bishop of Birmingham, in a letter read to the meeting, said that for a long time there was culpable negligence and quite unnecessary ignorance in this country on the question of air defence, and it was due to men like Lord Montagu, who braved unpopularity in order to instruct us, that we were now on the high road to improvement.

The Lord Mayor said that as a result of the air raid over the Midlands the reflection had arisen that it was a humiliation for England that we should have to endure attacks of that kind and be helpless to hit back, and accordingly they were very anxious to have some assurance that our rulers—who did not appear to have evolved anything in the nature of an air policy—had now got a policy and were taking steps to carry it into effect. They were grateful that Lord Montagu had chosen Birmingham as the place for his first public pronouncement since his resignation. He held that a Minister of the Air had become absolutely essential for our national security. (Cheers.)

THE SPEECH.

Lord Montagu said that he trusted that he would not say anything which would help the enemy, and he did not wish to do anything which would be to the detriment of the great cause or would embarrass the friends of that cause whom he knew to be in the Cabinet.

"When I was invited by the Prime Minister (Lord Montagu continued) to join the War Air Committee I felt that because I had been a critic I was all the more bound to help if I could, and

people who criticised me at the time for joining the Committee did so perhaps rather light-heartedly. I joined the Committee with high hopes. I thought it might become, and Lord Derby had assured me that there was a chance of its so doing, the nucleus of a Board of Aviation, the foundation upon which there might be built a Ministry of Aviation. I thought it meant more than its limited terms of reference seemed to imply. But when I had sat on the Committee during a few meetings I discovered that it had practically no real power at all, and that no decisions could be come to unless all the members on it were unanimous. It could forward no recommendations unless the representatives of the Navy and Army entirely agreed, and I could see at once that it was unlikely if any criticism was put forward, or any comment upon the two Services, that you could ever get a unanimous decision.

"The Committee had no executive power, and though I believe it was put forward in good faith, I felt, and Lord Derby felt, that it was perhaps lulling the public into a sense of false security, and I for one was determined not to be made use of in that manner. (Cheers.) After a time, I do not think I am guilty of a breach of confidence in saying, we came to the question of making an interim report. We were quite unable to agree on the terms of that report, and gradually both Lord Derby and myself came to see that the only fair and honest thing was to resign, and ask the Government if they wanted anything done to appoint some real body—call it a Board or Ministry or what you like—that could be of real service in solving these great problems. Thus I resume my complete freedom of action and come down here to-day to lay my case before you in this great centre of England.

"I do not know whether the belief still holds that an inland town is less liable to danger than a coast town, but let me tell you that you live here barely 300 miles from the nearest Zeppelin shed, and are just as likely to be attacked as though you lived at Dover or Yarmouth. There is no part of industrial England to which a Zeppelin could not fly and rain destruction. The more important the district the more likely you are to be attacked. I have pointed out over and over again in the House of Lords and in the public Press that this danger was coming, and I do not think it needs anyone to convert you to the belief that we must do something to avert the danger.

Lord Montagu said that to-day we were not doing enough scientific thinking. This could not be helped in war. It was one of the inevitable consequences of having to make up for lost time. Years ago many of them had warned the Government of the seriousness of the question, and he believed that in this, as in many things, the people of the country were far ahead of Parliament, and Parliament was ahead of the Government.

In this war the power of defence had grown so largely that it had largely stopped offence. This could only have one result.

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On the sea it would drive warfare into the sphere of submarines, and on land it would drive it into the air. Warfare would be driven into new channels, and we were now only at the beginning of that struggle.

We still had time to make up for the neglect of the past. There was still time while the war was going on to found what he would call an Imperial Air Service, for he wanted to take the Dominions in as well.

GOVERNMENT RESPONSIBILITY.

To-day we had no airships to act as eyes for our Fleet. The German Fleet had Zeppelins spread over the North Sea, but we had only a few seaplanes and our magnificent service of destroyers and submarines. A Navy that had a chance of seeing your strategic arrangements from a distance of 70 to 80 miles had an enormous advantage over a Navy that did not possess eyes of that kind. He did not think our rulers could be acquitted of negligence in not having foreseen that point.

In the case of the Army, after 20 months of war our fighting planes were not so fast as those of the Germans or of the French, and he believed the Russians, too, were in some ways ahead of us. He knew there were good machines on the stocks, and that steps were being taken to remedy defects, but why should there be this hiatus in between? The Government as a whole were responsible for the defects.

Then he came to our own shores. In the 20th month of the war we had just begun to have a system of anti-aircraft defences in this country. He was not going to reveal secrets or talk about dummy guns—(laughter)—but he would say that there was hardly a town, with the possible exception of London, which could be properly defended to-day against attacks from Zeppelins. Our Anti-Aircraft Corps, like our pilots, included many gallant fellows, skilled men, and able commanders, but what could they do with guns that were too small and preparations which were inadequate? It was almost incredible to him that things should have been left so long in this direction, as in others. It must have been well known to the Government that we were running this risk.

The people in the Midlands had courage, and were not going to squeal because they were bombed, but they had the right to complain that they were forced to sit inactive and that they could not hit back. It was the feeling of helplessness which was hated, and they were right to hate it. There was virtue in being stolid, but not in being stupid.

He would like his audience to realise the truth of the phrase, "One element one service." Was it possible to go on running the air defence of the country or an air offensive by two departments, sometimes three, without any link between them, and with traditional jealousies existing between them? The curse, for it was a curse, of all Government departments was that of thinking departmentally instead of nationally. (Cheers.)

A few days ago he turned round to certain representatives on the War Air Committee and asked if it was not time that they dropped phrases about competition between Services and had more co-operation. (Cheers.) If circumstances demanded the recasting of some of our administrative departments, he for one said that no departmental difficulties should hinder national necessities.

He knew there was an argument that if they set up a Ministry of Aviation, instead of the Navy and Army having their little tiffs there would be a third department to quarrel with. If, however, they put into the Ministry of Aviation men of ideas, and, he hoped also, men of tact, though there would be great difficulties, these were not to be compared with the danger of leaving things as they were.

When the Ministry of Munitions was first established there was a very tough fight with certain departments of the War Office, but the great point was that Mr. Lloyd George formed the department and got the stuff, millions and millions of rounds and thousands of guns. It was something of the same kind he wanted to see established with regard to aviation.

He had submitted a scheme to the Cabinet, and before disclosing the details of this it was only fair to give the Cabinet a chance to consider the proposal. He could say, however, that he did not wish to interfere with the executive control of their aircraft by either the Commander-in-Chief of the Army or the Admiral of the Grand Fleet. His first object, if he should induce the Government to establish a Board of Aviation, would be to secure a body which would hand over trained men and complete machines for the Army and Navy. The department would deal with design, construction,

inspection, supply, contracts, scientific research, and the enlistment, training, and allocation of *personnel*.

CRANKS AND REVOLUTIONS.

He knew that reformers were called cranks, but Birmingham knew there were different kinds of cranks. Some cranks produced revolutions, and so produced power.

The air was so important that in future wars it would be a case of go up or go under. (Laughter.)

There were people who said that the changes he urged should not be made in war-time, and that one should not swop horses when crossing a stream. When people were opposing a scheme they nearly always found a proverb to fit their case. Was there any great difficulty in bringing about some united administration? In the early days the R.F.C. included Naval and Military Wings, and lately Colonel Sykes had commanded aviators of both Services.

The real difficulty which the Government thought would occur was purely a departmental difficulty. When they were trying to amalgamate two great commercial companies where did the opposition always come from? From the administrative staffs, and not from the shareholders. The people were shareholders in the British Empire, and opposition in this matter did not come from them.

Returning again to the neglect of the Air Service—which, he said, was treated before the war very much like a baby which nobody wanted, and which was left on the War Office doorstep till someone picked it up and took it across to the Admiralty—Lord Montagu referred to Lord Northcliffe's encouragement of aviation. Lord Northcliffe, he said, did more than any man at that time to help progress. (Loud applause.)

Things drifted on, however, until the war came, and then suddenly people began to wake up to the importance of it all. Now everyone was trying to get the control of aircraft in their hands. The War Office refused to give up any of its functions, and the Admiralty said, "If it is taken away from us we shall resign. It is an integral part of the Navy."

He thought that neither the Army nor the Navy should have control of it. They must have some new department created which would not have within its walls the rivalries and jealousies of the past. Only in that way would they be able to build a sufficient number of aircraft and train up enough pilots to make us supreme in the air when the terms of peace were being discussed. If the objection was raised that this claim must not be pressed because this or that man would resign, he was prepared to face the resignations. (Cheers.)

THE JOBS OF THE SENIOR SERVICES.

Lord Montagu said that aircraft must be put in the hands of a new department free from jealousies.

The submarine danger is the Navy's job. When the last enemy submarine is sunk the Navy can seek a new element. Let the Sea Lords stick to their own jobs.

The Army is stagnant in various parts of the world. Why, then, should it tackle fresh problems?

The Imperial Air Service must have a united administration. The country cannot say that he (Lord Montagu) had not warned it, that the Press had not warned it, and that Mr. Pemberton-Billing had not warned it. (Applause.)

In the light of his experience he said that we could not go on with the present divided administration. The administration must be united. We must have a strong air policy or else this country would suffer far more than it would otherwise do in the coming months of the war. At the present time lives were being sacrificed, money was being spent, and time was being wasted while we kept on considering the problem. Action was needed.

They must remember, moreover, that money spent on aircraft will help humanity after the war, and will not be a dead loss like money spent on shells and bullets, for aircraft will help progress. He had faith in his cause, and because he had that faith he had no fear for the future. (Cheers.)

A most cordial vote of thanks and of confidence in Lord Montagu's policy was proposed by the Mayor of Smethwick, the leader of Trade Unionism in the Midlands, and seconded by the Chairman of the Worcestershire County Council, a representative leader of the land-holding classes. Their remarks and the enthusiasm with which they were received showed the unanimity of all classes in favour of energetic prosecution of the war and in disapproval of the Government's inept policy.

A PUZZLE.

If an authority, Naval or Military, sets up a Dummy Gun in an important city, what is the reason for such action? Is it (a) To frighten the enemy away; (b) To inspire confidence in the populace; (c) To signify to the enemy that this is a fortified place, within the meaning of the Act, and is therefore legally liable to bombardment; (d) To act as a bait to lure the enemy over it and within range of hidden real guns (if any exist); (e) To induce the bombardment of the vicinity, possibly the residence of personal or political enemies; (f) To see whether a gun so placed improves or

deteriorates the landscape; (g) To play the part of the cheese in a trap for the apprehension of local spies; (h) To see whether the average man in the street has sufficient intelligence to notice its existence; (i) To train anti-aircraft crews not to jump when they think the gun is going off; (j) To intimidate captured Germans into giving away State secrets, by threats that they will be sent aviating in a disintegrated state from the cannon's mouth; (k) To be used as a concealed wireless station; or (l) Just plain everyday official foolishness?

[No prizes are offered for any solutions of this puzzle.—Ed.]

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Mr. Pemberton-Billing's Air Service Scheme.

On April 12th the Member for East Herts submitted to Mr. Asquith his scheme for the creation of an Imperial Air Service.

He pointed out that "the Government has not found it convenient to keep their promise made in February, that the reorganisation of the air services shall be discussed at an early date, and this in spite of the fact that the period of year suitable for sustained operations in the air is now at hand, presenting opportunities that will be lost for another year if no steps are taken to seize them." He therefore submitted these proposals to "put an end to the colossal waste of energy and material entailed by the present chaotic methods of administration."

Of the three phases of aircraft operations—naval reconnaissance, military reconnaissance, and aerial warfare—"only the second has yet attained even a moderate development, and even this has been severely handicapped by inefficient material. The first and third, owing to lack of an intelligent, far-sighted, and consistent policy, have never advanced beyond an 'embryo state.'"

One defies Mr. Pemberton-Billing's most hostile critics to deny this statement.

To secure a consistent policy "it must be directed from one centre, at which must be collected the best brains available, and these brains must have a competent knowledge of all the problems involved."

Therefore Mr. Pemberton-Billing proposes an Air Board, headed by an Air Minister with a seat in the Cabinet, who should direct the general policy and supervision of the Board, the appointments of all officers of high rank, the promotion and removal of officers, civil appointments and promotions, honours and rewards.

According to his scheme the Board should be constituted thus:—

Director of Operations, to decide what operations are fit and to supervise their execution.

Director of Air Defences, to control home anti-aircraft defences and the interception of raiders.

Director of Construction, to decide as to types to be constructed and superintend their construction.

Director of Personnel, to supervise officers and men and their training.

Director of Equipment, to control the manufacture, purchase, and supply of all stores.

An associated member, nominated by the Admiralty, to represent the Navy, and

An associated member, nominated by the Army Council, representing the Army.

THE MEETING AT "HIS MAJESTY'S."

Mr. Pemberton-Billing was the speaker at the Sunday Matinée on April 16th at his Majesty's Theatre in aid of the Red Cross Fund. Mr. Arnold White presided over the largest attendance the theatre has seen for a very long time, for hundreds of people were turned away, and the theatre was packed to its utmost capacity. The audience was composed of the best class of Londoners, and cheered enthusiastically every reference to the Government's inept handling of the problems of war, a fact which should be significant to Government agents who were present, as it indicated the distinctly ugly temper of the people of this country owing to official delays in the matter of killing Huns.

Mr. Pemberton-Billing said that although we only saw the aeroplane now as a weapon of war in its ultimate result he regarded it as a winged messenger of peace, if this country gained supremacy in the air. Our supremacy on the sea had kept the peace of the world for many years, and it was a great Imperial mission to secure the supremacy in the air, so that when this war was ended we could take the chair in the Council of the nations. (Cheers.)

He believed that aerial warfare would become so terrible that it would of itself make war impossible. After a talk he had with Mr. Asquith for about half an hour on his scheme for air defence and after explaining how to appoint an Air Board, the Prime Minister said: "God bless my soul! Nine more jobs! (Laughter.) Nine more salaries!" He replied; "No, the providing of jobs for nine men who are at present drawing salaries and doing nothing."

He was absolutely confident, he said, that if we had the Germans moving at all and we could strike a big blow with our air fleet, the war would be finished within a month. When we did have an Air Board there would be many a reputation lost, but we could not let one man's reputation, or fifty men's reputations, stand between us and the legitimate goal of our Empire.

The bulk of Mr. Pemberton-Billing's arguments are already well known to the readers of this paper, who have read the speeches he has made in the House of Commons, but to the majority of his vast audience most of his points were evidently new, and there is no doubt that the meeting was of very great educative value.

AT WIMBLEDON.

Mr. Pemberton-Billing, speaking at Wimbledon Theatre on April 16th, at a meeting in support of the candidature of Mr. Kennedy Jones, declared that we should have before long an Air Board with administrative power, and in ten years' time our national existence would depend on it. Berlin would be within a few hours' striking distance of London. If Germany spent in ten or five years

This Board should appoint a Parliamentary and Financial Secretary and a permanent secretary, superintendents of construction of aeroplanes and seaplanes, airships and balloons, engines, and armament.

The Aerial Board of Control should not interfere with the aerial operations pertaining directly to the naval and military forces, these being left to the Admiralty and the Army Council respectively.

As regards the Fleet, these operations include scouting and driving off enemy scouts, spotting for guns and defending fleets from aerial attack.

As regards the Army, they include reconnaissance work (which includes photography), the prevention of reconnaissance by the enemy, artillery fire control, and offensive operations over the enemy's lines and attacks on enemy bases.

Mr. Pemberton-Billing says: "The object of air operations should be a vigorous and sustained offensive against enemy air bases, munition factories, dockyards, and store-houses. Until a suitable night-flying aeroplane capable of seeing, reaching, and attacking a Zeppelin has been produced in sufficient quantities, the defence of this country against aircraft flying at night must rest with the gun and the searchlight. Against daylight raiders the aeroplane, if properly armed and of sufficient speed, will be more effective. The co-ordination of these two methods of defence should be in one man's hands, and that man must know sufficiently the possibilities and limitations of night flying."

He proposes a more efficient system of telegraphic and light signals and luminous maps, the present telephone system of warnings not having proved effective.

He claims that there will be a sufficient surplus of experienced aviators to form the nucleus of a new corps "if the Naval Air Service is confined to its legitimate functions." Which are, of course, to act as the eyes of the Fleet, and to operate a complete system of coastal and anti-submarine patrols.

These proposals would necessitate the creation of a separate Air Service Vote and the presentation to Parliament of separate Air Service estimates and accounts.

The above is only a very brief review of the scheme submitted to the Prime Minister, this scheme being itself merely a synopsis of the whole system of organisation as worked out by Mr. Pemberton-Billing, who has offered to place the system in its entirety in the hands of the Government if the synopsis interests them sufficiently.

on an Air Service one twentieth of what she had spent in the last ten years on her Navy she would possess a weapon that could devastate this country in a night.

A hundred thousand aeroplanes was no dream: It was a simple thing. One could give the Government a price for them next day, and dates for delivery. A hundred thousand pilots was nothing. One could teach a man to work an aeroplane quicker than to drive a taxicab.

THE ALBERT HALL MEETING.

The first meeting of signatories to the Air Covenant, instituted by Mr. Pemberton-Billing, M.P., will be held at the Albert Hall on April 27th. As several hundreds of thousands of people have already signed the Covenant the attendance is bound to be large, therefore it will be well to book seats in advance. These may be booked at two shillings each, the money thus received being applied to the cost of hiring the hall and to the general working expenses of the Covenant. Applications for seats should be made to the Air Covenant Offices, 4, Elm Court, Temple, E.C.

A HAMPSHIRE MISHAP.

A curious state of affairs has been created at Farnborough by the discharge of men from the Royal Aircraft Factory. It was announced in THE AEROPLANE some months ago that a Territorial unit of the Royal Flying Corps had been established, and that an attempt was made to persuade all the male employees of the Factory to join. Many of them did so. They were duly sworn in for four years, received their uniforms, and attended the corps drills. Recently a number of them were dismissed from the Factory, and were told at the same time that they were automatically discharged from the corps. Then some of them received what they described as "Conscript" papers, and were ordered to report on given dates.

Last week a deputation consisting of 14 young men, all members of the Territorial unit, attended before the Farnborough Tribunal, to protest against being branded as Conscripts, and to seek advice as to their real position. They had enlisted in proper form in a Territorial unit, and they could not understand how they could be discharged from that unit.

The chairman promised them the protection of the Tribunal in so far as it concerned the men who had been called up and who were therefore liable to arrest as deserters. They would adjourn the case for a week, and in the meantime a report of the deputation's grievances would be forwarded to the proper authorities.

All of which is precisely the kind of muddle one would expect at the R.A.F.

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From the "London Gazette," April 11th, 1916.

WAR OFFICE, April 11th.

REGULAR FORCES.—COMMANDS AND STAFF.—ATTACHED TO HEADQUARTER UNITS.—General Staff Officer, First Grade.—Maj. (temp. Lieut.-Col.) L. E. O. Charlton, D.S.O., Lanc. Fus., from a Wing Commr., R.F.C., and to retain temp. rank while so employed, vice Maj. (temp. Lieut.-Col.) C. C. Marindin, R.A. March 19th.

Directors.—Bt. Lieut.-Col. (temp. Brig.-Gen.) W. S. Brancker, R.A., from a Brig. Commr., and to retain temp. rank while so employed; Bt. Lieut.-Col. (temp. Col.) D. S. MacInnes, D.S.O., R.E., from a Dep. Dir., and to be temp. Brig.-Gen. while so employed. March 27th.

Asst. Director.—Maj. W. B. Caddell, R.A., from a Dep. Asst. Dir., and to be temp. Lieut.-Col. while so employed. March 27th.

Dep. Asst. Director.—Maj. B. Hopkinson, Unatt. List, T.F., from a Staff Capt. at War Office. March 27th.

A.A.G.—Maj. W. W. Warner, ref. pay., I.A., from a Gen. Staff Officer, Second Grade, at War Office, and to be temp. Lieut.-Col. while so employed. March 27th.

ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Flight Commrs.—From Flying Officers and to be temp. Cpts. while so employed: Temp. Lieut. A. M. Wilkinson, Hamps. R., T.F. February 22nd. Sec. Lieut. J. A. Crook, S.R. March 2nd. Lieut. H. H. Kitchener, R.E., Lieut. W. A. G. Bellew, S.R., Sec. Lieut. P. G. A. Harvey, 3rd Dgn. Gds., Sec. Lieut. C. A. A. Hiatt, Norf. R. March 29th.

Flying Officers.—Sec. Lieut. H. M. T. Lehmann, Essex R., and to be secd., Sec. Lieut. W. G. Albu, R. Ir. Fus., S.R., and to be secd., Temp. Sec. Lieut. S. E. Lewis, Gen. List, Sec. Lieut. J. S. Beatty, S.R., Sec. Lieut. W. R. C. Dacosta, S.R., Sec. Lieut. S. F. Heard, S.R., Sec. Lieut. C. Monckton, R. Ir. Fus., S.R., and to be secd. March 28th.

Asst. Equipment Officers.—Sec. Lieut. G. C. Burnand, S.R. March 1st. Sec. Lieut. J. E. Rendle, S.R. March 30th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—The Christian names of Sec. Lieut. Lester Edward Taylor are as now described, and not as in "Gazettes" of September 13th, 1915, and November 11th, 1915; J. E. Rendle to be Sec. Lieut. March 10th. Sec. Lieuts. (on prob.) are confirmed in their rank: W. R. C. Dacosta, S. F. Heard; F. A. Crispin to be Sec. Lieut. (on prob.). March 14th.

* * *

From the "London Gazette" Supplement, April 12th, 1916.

WAR OFFICE, April 12th.

REGULAR FORCES.—MEMORANDA.—The following N.C.Os. to be temp. Sec. Lieuts. for duty with R.F.C.: Sergt. N. B. Harris, from R. Fus. (City of Lond. R.); Corpl. (Motor Cyclist) H. Floyd, from R.E.; Corpl. E. T. Pruett, from R.E. March 19th.

ESTABLISHMENTS.—ROYAL FLYING CORPS.—Squadron Commanders.—From Flight Commrs., and to be temp. Maj. whilst so employed.—Capt. J. H. A. Landon, Essex R., T.F.; Temp. Capt. C. G. S. Gould, R.A.; Temp. Capt. G. D. Mills, Notts and Derby R. March 1st. Captain R. G. Cherry, R.A. March 15th.

Flight Commanders.—From Flying Officers, and to be temp. Cpts. whilst so employed: Lieut. M. D. Methven, Lond. R., T.F. March 1st. Lieut. E. F. Norris, S.R. March 31st.

Equipment Officers.—And to be temp. Cpts. whilst so employed: Lieut. C. Defries, S.R., from an Asst. Equipmt. Officer; Lieut. S. A. Currin, S.R., from an Asst. Equipmt. Officer; Sec. Lieut. H. Lee, S.R., from an Asst. Equipmt. Officer; Sec. Lieut. T. E. St. C. Daniell (incorrectly described in "Gazette" of November 15th as T. C. Daniell), Gen. List; Sec. Lieut. T. G. Clarkson, S.R., from an Asst. Equipmt. Officer. January 30th. Lieut. C. P. Ogden, S.R., from an Asst. Equipmt. Officer. March 25th.

Flying Officers.—Temp. Sec. Lieut. T. H. Bayetto, Gen. List. March 12th. Lieut. W. H. Doré, 32nd (Res.) Canadian Inf. Bn.; temp. Sec. Lieut. C. W. Hyde, R.A., and to be transf'd. to Gen. List; Sec. Lieut. R. A. Stubbs, R. Muns. Fus., S.R., and to be secd.; Sec. Lieut. A. Goulding, S.R. March 28th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—Sec. Lieut. (on prob.) A. Goulding is confirmed in rank. To be Sec. Lieuts. (on prob.).—A. F. Palmer, E. Stokes, J. E. Wight. March 20th.

* * *

From the "London Gazette" Supplement, April 13th, 1916.

WAR OFFICE, April 13th.

REGULAR FORCES.—INFANTRY.—MIDDLESEX REGT.—Sec. lieut. to be lieut.: G. J. L. Welsford. September 4th, and secd. from October 21st, 1915, for employment with R.F.C.

SECOND RESERVE.—ROYAL SCOTS.—Temp. Sec. Lieut. E. R. Gunner, from R.F.C., to be temp. Sec. Lieut. (on prob.). April 14th.

From the "London Gazette," April 14th, 1916.

ADMIRALTY, April 10th.

ROYAL NAVAL AIR SERVICE.—The following temp. Flight Sub-Lieut. has been promoted to rank of temp. Flight Lieut.: L. A. Hervey. April 1st.

WAR OFFICE, April 14th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Asst. Equipment Officers.—Sec. Lieut. A. E. Oxley, S.R. February 3rd. Sec. Lieut. L. A. Sturrock, I.A., Res. of Officers. March 15th. Sec. Lieut. A. J. Rickie, S.R. March 18th. Sec. Lieuts., S.R.: E. L. P. Morgan, O. C. Morison, L. Bawn, L. H. B. Cosway, T. Worswick. March 30th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieuts. (on prob.) confirmed in rank: E. L. P. Morgan, T. Worswick, L. Bawn, L. H. B. Cosway, J. S. Beatty.

A. J. Rickie to be Sec. Lieut. (March 18th, but with seniority as from December 27th). C. N. Seemann to be Sec. Lieut. (on prob.). March 20th.

* * *

His Majesty the King has been graciously pleased to confer the Military Cross on the undermentioned officer in recognition of his gallantry and devotion to duty in the field:—

Capt. ERIC MACKAY MURRAY, Queen Victoria's Own Corps of Guides, Indian Army (attd. R.F.C.).

For conspicuous gallantry and determination. He has flown continually in all winds and weathers, and carried out many daring reconnaissances with great skill.

* * *

The King has been pleased to give and grant unto the undermentioned officers His Majesty's Royal licence and authority to wear Decorations (as stated against their respective names) which have been conferred upon them by His Majesty the Emperor of Russia in recognition of valuable services rendered by them:—

FOURTH CLASS OF THE ORDER OF ST. VLADIMIR.

Major and Brevet Lieut.-Col. (temp. Brig.-Gen.) WILLIAM SEFTON BRANCKER, R.A.

Capt. and Brevet Lieut.-Col. FREDERICK HUGH SYKES, 15th Hussars.

SECOND CLASS OF THE ORDER OF ST. STANISLAS.

Maj. (temp. Lieut.-Col.) HENRY ROBERT MOORE BROOKE-POPHAM, D.S.O., Oxfordshire and Buckinghamshire Light Infantry (General Staff Officer, First Grade, R.F.C.).

THIRD CLASS OF THE ORDER OF ST. ANNE.

Capt. and Brevet Maj. (temp. Lieut.-Col.) WILLIAM DAWSON BEATTY, Royal Engineers and R.F.C. (Assistant Director of Military Aeronautics).

Capt. (temp. Maj.) RUTHER BARRY MARTYN, Wiltshire Regiment and R.F.C.

Maj. WILLIAM WARD WARNER, late Indian Army, General Staff Officer, Second Grade.

Maj. WALTER BUCKINGHAM CADDELL, R.A., Deputy Assistant Director of Military Aeronautics.

* * *

From the "London Gazette" Supplement, April 15th, 1916.

WAR OFFICE, April 15th.

REGULAR FORCES.—COMMANDS AND STAFF.—A.G.'S and Q.M.G.'S STAFF.—A.A. and Q.M.G.—Bt. Lieut.-Col. F. H. Sykes, 15th Hrs. March 27th.

ESTABLISHMENTS.—ROYAL FLYING CORPS.—Flying Officers.—Lieut. H. J. Payn, R.E., Spec. Res., from a Flying Officer (Observer); Temp. Sec. Lieut. H. Barker, E. York R., and to be transf'd. to Gen. List; Sec. Lieut. S. G. Hodges, Wilts R., and to be secd. May 25th. Sec. Lieut. F. G. S. Williams, Gen. List; Sec. Lieut. C. T. H. Vaisey, Spec. Res.; Sec. Lieut. F. R. Hardie, 3rd Hrs., from a Flying Officer (Observer). March 31st.

Flying Officers (Observers).—Temp. Sec. Lieut. W. H. Davies, K.O. Scot. Bord., and to be transf'd. to Gen. List; Sec. Lieut. J. W. Halcrow, Dorset R., S.R., and to be secd.; Temp. Sec. Lieut. F. P. Holliday, Gen. List; Sec. Lieut. E. L. Benbow, R.A., and to be secd. March 10th.

Asst. Equipment Officers.—Sec. Lieuts., Spec. Res.—J. R. Frankish, R. Scott. April 4th.

MEMORANDA.—The following to be temp. Sec. Lieuts. for duty with the R.F.C.—Pte. R. G. Hornby, from L'pool R., T.F.; Pte. S. N. Williams, from N. Som. Yeo., T.F.; Corpl. P. A. Wright, from 1st Canadian Pioneer Bn.; Lce.-Corpl. L. H. Stowell, from Inns of Court O.T.C. April 15th.

* * *

From the "London Gazette" Supplement, April 17th, 1916.

WAR OFFICE, April 17th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flying Officers.—Temp. Sec. Lieut. (temp. Lieut.) W. St. J. Scott-Scott, from Res. Regts. of Cav., and to relinquish his temp. rank; Sec. Lieut. E. N. Holstius, Durh. L.I., and to be secd.; Sec. Lieut.



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H. A. Taylor, R. W. Kent R., and to be secd.; Sec. Lieut. J. S. Windsor, S. Wales Bord., and to be secd.; Sec. Lieut. M. L. Maguire, Conn. Rang., and to be secd.; Lieut. J. C. Russell, R.E., from a Flying Officer (Observer) (April 1st); Suptg. Clerk W. E. Aylwin, from R.E. to be Q-Mr., with hon. rank of Lieut. (April 5th).

MEMORANDA.—Sgt. F. T. Courtney and Cpl. O. W. Clapp, from R.F.C., to be temp. Sec. Lieuts. for duty with Mil. Wing of that Corps (March 28th). To be temp. Sec. Lieuts. for duty with R.F.C.:—Pte. E. Bainbridge, from R. Fus.; Sgt. C. F. Reeve, from Aust. Imp. Fee.; Sgt. E. S. Williams, Winch. Coll. O.T.C.; Pte. A. J. Court, from Aust. Imp. Fee.; Pte. T. W. Jay, from H.A.C., T.F.; Pte. R. M. Drummond, from Aust. A.M.C. (April 15th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Follg. Sec. Lieuts. (on prob.) are confirmed in rank:—J. R. Frankish, R. Scott, C. T. H. Vaisey.

NAVAL.

The following appointments were notified on April 11th:—

ROYAL NAVAL AIR SERVICE.—Air Mech., First Grade, W. G. Watson and Mr. M. T. Spence granted temp. commissions as sub-lieut., R.N.V.R., and appointed to the "President," additional, for R.N.A.S., to date April 10th.

Mr. L. E. Nicholson granted a temp. commission as sub-lieut., R.N.V.R., with seniority April 10th, and appointed to the "President II," additional, for R.N.A.S., to date April 17th.

Mr. T. M. Morgan entered as proby. flight sub-lieut., temp., and appointed to the "President," additional, for R.N.A.S., to date March 22nd.

Chief Petty Officer D. J. Forde, promoted to the rank of warrant officer, sec. grade, for temp. service, and appointed to the "President II," additional, for R.N.A.S., to date April 8th.

* * *

The following appointment was notified on April 12th:—

ROYAL NAVAL AIR SERVICE.—Lieut.—The Hon. R. Coke, to the "President II," additional, for R.N.A.S., April 11th.

* * *

The following appointments were notified on April 13th:—

ROYAL NAVAL AIR SERVICE.—Flt. Sub-Lieut. (Temp.).—L. A. Hervey, promoted to Flt. Lieut. (temp.), with seniority of April 1st.

Mr. C. F. M. Chambers, entered as Proby. Flt. Sub-Lieut. (temp.), with seniority of April 25th, and appointed to "President," for R.N.A.S.

Temp. commissions (R.N.V.R.) have been granted with seniority as follows:—A. F. H. Smallpiece, as Lieut., April 12th; E. T. S. Jones and G. S. Hewitt, both as Sub-Lieuts., March 17th and April 12th respectively, and both appointed to "President," for R.N.A.S.; and G. A. Richardson (Air Mechanic, First Grade) as Sub-Lieut., April 12th.

* * *

The following appointments were notified on April 14th:—

Actg. Carpr., R.N., George J. Davies graded in R.N.A.S. as warrant officer, sec. grade, to date April 11th.

Petty Officer Mech. W. W. McDowell promoted to temp. warrant officer, sec. grade, to date April 19th.

* * *

The following appointments were notified on April 17th:—

ROYAL NAVAL AIR SERVICE.—Actg. Squadron-Com. W. Briggs and Flight-Com. H. A. Williamson promoted to Squadron-Com., with seniority April 14th.

Messrs. N. H. Brandon and H. L. Rutty granted temp. commissions as Lieut., R.N.V.R., and appointed to the "President," additional, for R.N.A.S., to date April 15th.

Mr. J. G. Bayes entered as Lieut. R.N.V.R., temp., and appointed to the "President," additional, for R.N.A.S., to date April 15th.

The undermentioned have been entered as proby. Flight Sub-Lieuts. for temp. service, and appointed to the "President," additional, for R.N.A.S., to date as mentioned: A. H. Allardyce, March 16th; A. S. Cheshire, April 15th; and S. H. Gaskell, April 13th.

* * *

On April 16th the Secretary of the Admiralty issued the following announcement:—

On the evening of April 14th a raid on Constantinople was carried out by three naval aeroplanes.

Bombs were dropped on the Zoitunlik powder factory and the aerodrome hangars.

Another naval aeroplane visited Adrianople, and dropped bombs on the railway station.

The following were the officers who took part in the operations:—

Squadron Commander J. R. W. Smyth-Piggott.

Flt. Lieut. K. S. Savory.

Flt. Sub-Lieut. R. S. W. Dickinson.

Flt. Sub-Lieut. I. H. W. Barnato.

All have returned safely.

The flight to Constantinople and back measured over 300 miles, and though fine weather prevailed at the start, adverse conditions supervened, with wind, rain, and thunderstorms.

[One would like to know why this same raid was not carried out over six months ago, when all arrangements had been made for it, and why similar raids have not been carried on at intervals of a few days ever since.—Ed.]

* * *

The Secretary of the Admiralty announced the following casualty on April 11th:—

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED (January 12th).—Flt. Sub-Lieut. James S. Bolas, R.N.

* * *

The Secretary of the Admiralty announced the following casualty on April 12th:—

INJURED (under date April 11th).—Wing Com. Eugene L. Gerrard, R.N. (Lieut.-Col., R.M.L.I.).

[Col. Gerrard was one of the first four officers permitted by the Admiralty to fly officially. He is a remarkably fine pilot, and a very able and efficient officer, beloved and respected by all who have served under him. All wish him an early and complete recovery from his injuries.—Ed.]

* * *

The Secretary of the Admiralty announced the following casualties on April 15th:—

PRISONERS IN GERMANY (PREVIOUSLY REPORTED AS MISSING ARE NOW REPORTED TO BE PRISONERS IN GERMANY).—Flt. Lieut. George H. Reid, R.N.; Flt. Lieut. John F. Hay, R.N.; Flt. Sub-Lieut. Cyril G. Knight, R.N.; Midshipman Stanley E. Hoblyn, R.N.R.

* * *

The following appeared in the obituary columns on April 15th:—

CROCKER.—Killed on service, March 6th, 1916, Flight Commander William R. Crocker, R.N., fourth son of the late W. M. Crocker, Esq., F.R.G.S., and Mrs. E. J. B. Crocker, and grandson of the late Captain Peter Gapper, 64th Foot.

[One learns with regret that Flight Commander Crocker was killed in an accident on a railway in the Eastern Mediterranean, and not in an aeroplane accident. He was an able and efficient officer and will be very deeply regretted.—Ed.]

* * *

An engagement is announced between Lieutenant-Commander Philip Shepherd, R.N., and Squadron-Commander R.N.A.S., son of the late Mr. George Shepherd, of The Poplars, Bishopsthorpe, York, and Miss Jessie Anne Campbell, only daughter of the late Mr. Donald Campbell, Kalmata, Connel, Argyll, and niece of Mr. Alexander Campbell, St. Brannocks, Eastbourne, and Shanghai, China.

* * *

An engagement is announced between Flight-Commander Charles D. Breese, R.N., younger son of Mr. G. C. Breese, late of Chigwell, Essex, and Mary Eleanor, youngest daughter of Mr. H. C. Tweedy, of Fowey, Cornwall, late of Cloonamahon, County Sligo.

* * *

MILITARY.

The communiqué from G.H.Q. dated 10.50 p.m., April 11th, says:—

In the course of eight fights in the air yesterday our machines drove down one of the enemy's without sustaining any loss.

During the day, however, one of our aeroplanes was brought down by gunfire.

* * *

G.H.Q. dispatch of April 17th says:—

Yesterday there was considerable aerial activity. One of our machines is missing.

* * *

The following appeared in the casualty list issued on April 13th: WOUNDED.—Segrave, Capt. H. J., Wilts Regt., attd. R.F.C.

* * *

The following appeared in the casualty list issued on April 15th: KILLED.—Thomas, Sec. Lieut. W. N., R.F.C.

WOUNDED.—Brooks, Lieut. C. A., Wilts Regt. and R.F.C.

Duff, Capt. I. A. J., Dorset Regt., attd. R.F.C.

Moncrieff, Lieut. D. C., R.F.A., attd. R.F.C.

Robertson, Sec. Lieut. H. S., R.F.C.

Stodart, Capt. D. E., R.F.C.

* * *

The following appeared in the casualty list issued on April 17th (undated):—

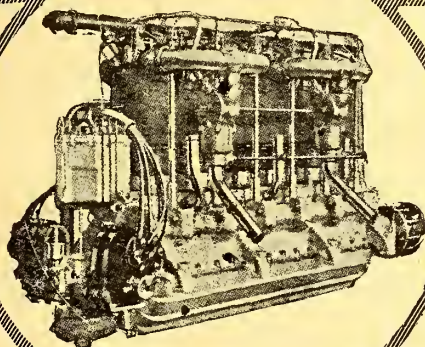
KILLED.—Lewis, Lieut.-Col. D. S., D.S.O., R. Engineers and Royal Flying Corps.

NOTICE TO READERS OF "THE AEROPLANE."—In view of the restrictions about to be imposed by the Government on the importation of paper, and of material for making paper, and of the consequent arbitrary limitation of supplies to individual newspapers, readers who wish to be sure of obtaining "THE AEROPLANE" regularly should place an order for the paper with a newsagent or bookstall clerk, or should become regular postal subscribers. Owing to the scarcity of paper it may be impossible in future to provide for a chance demand.

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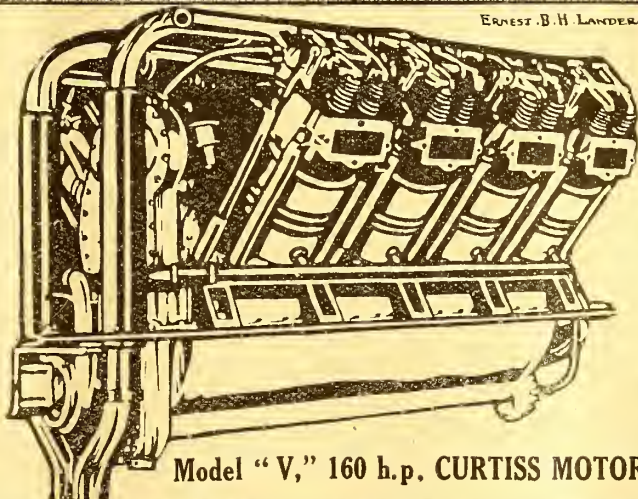
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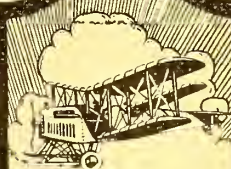


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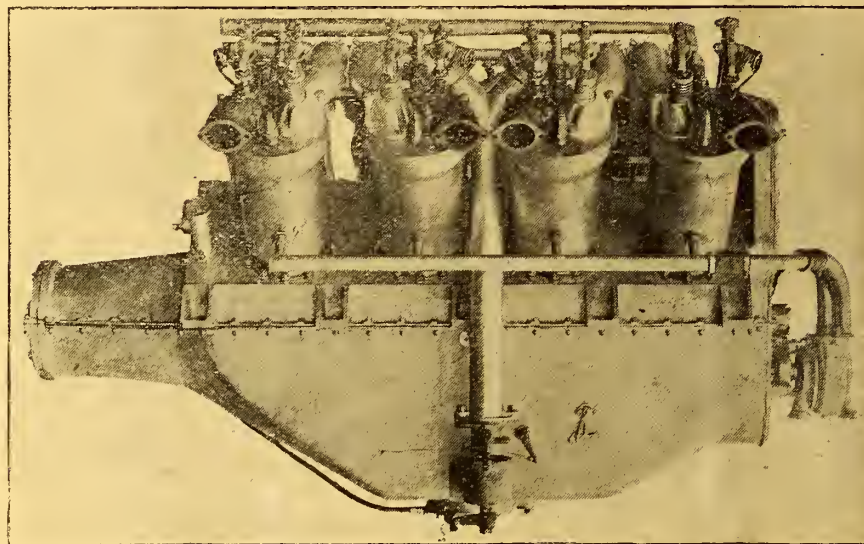


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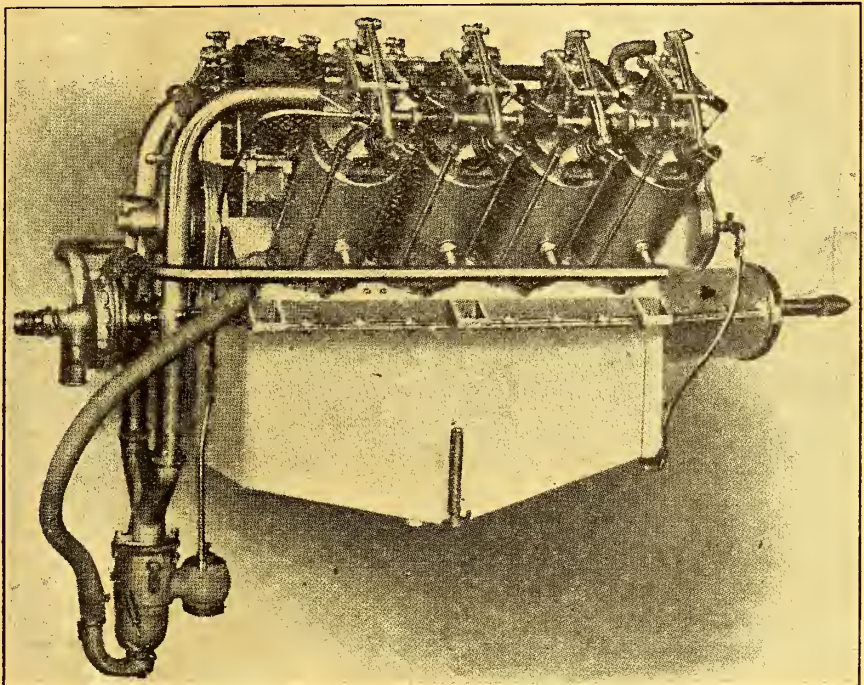
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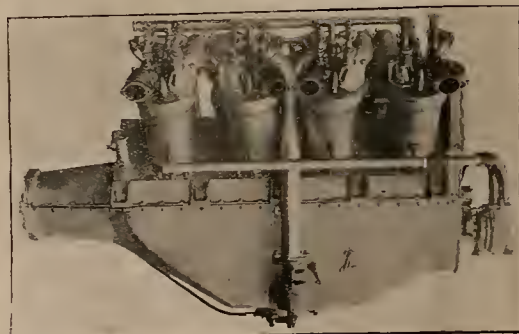
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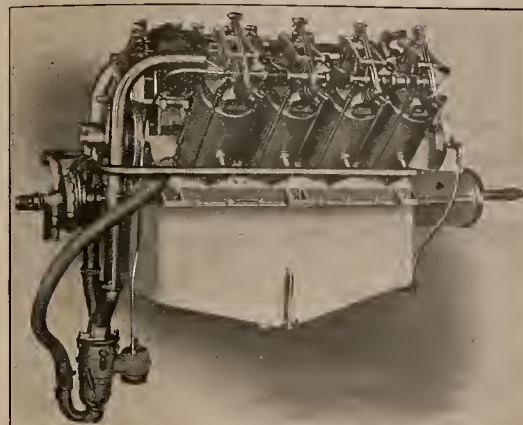
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MOORS

KINDLY MENTION "THE AEROPLANE" IN CORRESPONDING WITH ADVERTISERS.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Glen, Sec. Lieut. D. A., Manchester Regt. and Royal Flying Corps.

WOUNDED.—Graham, Sec. Lieut. R. L., R.F.A., attd. Royal Flying Corps.

* * *

Sec. Lieut. William Norman Thomas, Royal Flying Corps, who was killed on April 8th, aged 28, was a director of Messrs. W. S. Thomas Sons (Limited), contractors, of Oswestry. He joined the Montgomeryshire Yeomanry as a trooper in September, 1914, and was promoted sergeant dispatch rider in December of the same year. He received his commission in the Shropshire Light Infantry in June last, and took his flying certificate at Hendon in the following month. He was educated at Wellingborough, and was a good cricketer and hockey player, frequently representing Shropshire.

* * *

Lieut. Douglas Tweedy-Smith, Royal Flying Corps, second son of Mr. R. Tweedy-Smith, died on April 10th at the Red Cross Hospital, Netley, aged 19 years. He was a member of the London University O.T.C., and on the outbreak of war he received a commission in the 15th Middlesex Regiment. He was transferred early in 1915 to the R.F.C. Last October he was appointed an A.I.D. Inspector at Farnborough, and in this capacity had, after passing machines, to fly with them to France. On one occasion he met with a serious accident, when descending after dark. He only recovered from a dangerous illness at the end of March last, and on returning to his duties he was ordered to take a draft of men to France. On his return to Southampton he was taken ill again and died. Mr. Tweedy-Smith was a keen motorist and pilot and a good all-round sportsman. He was educated at Palmers College, Grays.

* * *

Lieut.-Col. Donald Swain Lewis, D.S.O., R.E., and R.F.C., who was the youngest son of Capt. E. Lewis, of Guildford, passed out of Woolwich into the Royal Engineers in December, 1904. He was promoted to Lieutenant in June, 1907, and in 1913 was gazetted to the Royal Flying Corps. He made rapid progress, and early this year was promoted to wing commander and was made a brevet major with the temporary rank of lieutenant-colonel. In October, 1914, he was mentioned in dispatches by Viscount French, and was awarded the D.S.O. on January 1st, 1915.

The death of Colonel Lewis is a great blow to the R.F.C., for not only was he beloved by officers and men alike, but even in the R.F.C., where the highest form of bravery is the commonest attribute, he was regarded as exceptionally gallant. Moreover, he was unusually brilliant mentally, for he and the late Capt. Baron Trevannon James, R.E., who was killed some months ago, were between them responsible for the success of the R.F.C. wireless plants, having worked assiduously at this problem long before the war. Both these officers combined skill in the science of wireless telegraphy with skill as pilots and skill in handling men, a most unusual combination of talents and one which makes their loss all the more regrettable.

I well remember a dear friend of mine, since killed in action, showing me his diary of the fighting round Ypres before Christmas, 1914, and being particularly struck by one entry which, quoting from memory, read thus: "Lewis, R.E., landed for lunch after three hours' spotting with the wireless machine. He flies it by himself and works the wireless at the same time. Went up directly after lunch for another three hours' spell. Heavily Arched all the time. I believe he likes it." He told me then what good work "Lewis, R.E.," was doing and how much everyone admired him. It was for his single-handed wireless work that Col. Lewis got his D.S.O.

D. S. Lewis was always known in the Corps as "Lewis, R.E.," to distinguish him from "R. E. Lewis," his contemporary in the R.F.C.'s early days.

Donald Swain Lewis was born at Banstead, Surrey, on April

5th, 1886. He took his certificate, No. 216, on a Bristol biplane at Brooklands, on May 14th, 1912.

Under the new official system of not indicating the date or locality of an officer's death, one does not know at the moment of writing where this gallant officer died, but the German communiqué of April 10th says that "an enemy aeroplane was seen to fall in the village of Loos," so it is possible that this may refer to Colonel Lewis.

The dead officer's relatives have, at any rate, the consolation that no one man has done more for the success of his Corps, and that none is more deeply regretted by his brother officers.—C. G. G.

* * *

The following appeared in the obituary columns on April 17th:—

COBBOLD.—Lieutenant Edgar Francis Wanklyn Cobbold, Cheshire Regiment, Territorial Force, and Royal Flying Corps, died (injury to head) on January 12th, 1916.

* * *

The marriage took place at Netley on Monday, April 10th, of Lieut. Theodore Marburg, Royal Flying Corps, to the Baroness Gisele de Vivario, of Liège.

The bridegroom, who is the son of Mr. T. Marburg, formerly American Minister at Brussels, was an undergraduate of Pembroke College, Oxford, until last summer, when he became a pilot in the Royal Flying Corps.

Early in October he went to France, and on December 7th he met with an accident. He and his observer were starting from an aerodrome on a "spotting" flight in a high wind, and had reached a height of about 200 ft. when the engine failed, as is unfortunately a habit of R.F.C. engines, and the machine nose-dived. The observer escaped with nothing more serious than a shock, but Mr. Marburg's left knee was pierced by a piece of woodwork, and, in spite of every effort of the R.A.M.C., it was found necessary five weeks after the accident to amputate the leg above the knee.

The bride is a refugee from Liège. It is not explained how an American obtained an R.F.C. commission.

The wedding took place quietly in the Church of St. Edward the Confessor, the Rev. G. W. Kerr, chaplain of Netley Hospital, officiating. The bride and bridegroom sailed for America on Saturday. Mr. Marburg expects to be provided with an artificial leg on his return and to resume his duties as a pilot.

* * *

The marriage arranged between Lieut. John Hamilton Mansfield, King's Shropshire Light Infantry and Royal Flying Corps, and Miss Phyllis Colvin Burt took place quietly at St. James's Church, Paddington, on Saturday, April 15th. No invitations were issued.

* * *

The following appeared on April 18th:—

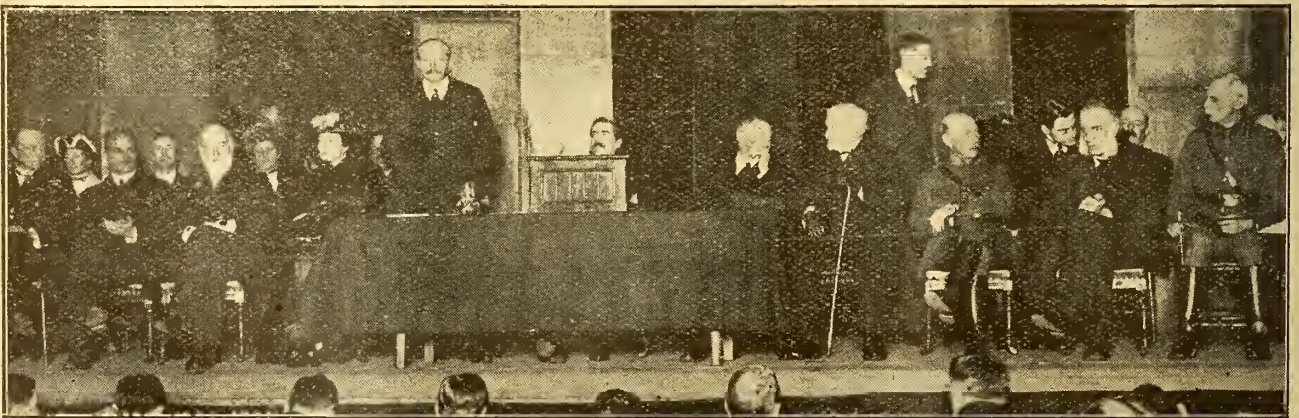
HUTCHESON—DOWNIE.—On April 15th, very quietly, at St. Martin's-in-the-Fields, Trafalgar Square, by the Rev. Wilfrid Parker, Captain Steel Hutcheson, 3rd Brahmins and Royal Flying Corps, son of Colonel G. Hutcheson, M.D., late I.M.S., Brunswick Place, Hove, to Esther, eldest daughter of Robert Manners Downie, Cornbrook, Knutsford, Cheshire.

* * *

An engagement is announced between Alister Frederick Keble White, Lieutenant 1/6th Suffolk Regiment and Royal Flying Corps, eldest son of the Rev. A. and Mrs. Keble White, of Chevington, Suffolk, and Doris Freda, only daughter of Colonel W. T. Pretty, T.D., D.L., 1/6th Suffolk Regiment, and Mrs. Pretty, of Greylands, Melton, Suffolk.

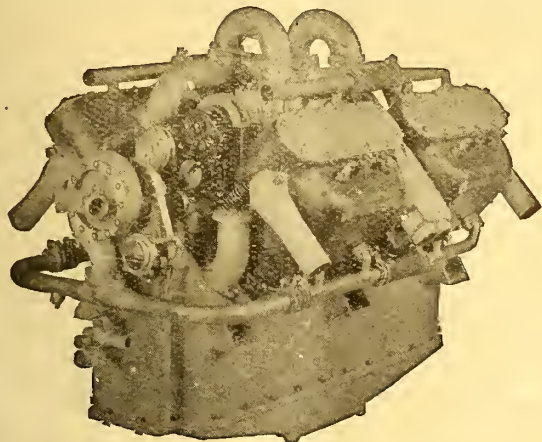
* * *

The marriage arranged between Mr. Geoffrey D. Pidgeon, R.F.C., and Miss Muriel Hicks will take place shortly, in London, very quietly, on account of the war.



Lord Montagu at Birmingham (standing), Mr. Neville Chamberlain (behind the box), Sir Oliver Lodge (on Lord Montagu's right), and Mr. Jesse Collings with the stick, next but one on Mr. Chamberlain's left.

ADAPTED TO ANY TYPE OF AEROPLANE



Any desired propeller speed is possible with the 140 horse-power Sturtevant Aeroplane Motor. The highly efficient reducing gear combined as a part of the motor unit permits the engine to operate at its most efficient speed while the propeller revolves at a speed best adapted to its design and the design of the plane. In size and shape it is compact and specially adapted for installation in a streamline body.

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140 real horse-power proven by innumerable tests made on the block with a water absorption dynamometer and under the inspection of the United States Naval Officers.

Sturtevant 8 Cylinder Aeroplane motors are now in active use in Europe and America proving daily their dependability and reliability.

The engineers of the Aeroplane Motor Department of this Company will gladly co-operate with those in the market for single motors or quantity shipments.

Remember 140 real horse-power, 4,620,000 foot pounds per minute.

Deliveries, if desired, at the rate of four motors per day.

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It incorporates a horizontal reference plane of accuracy and integrity to which all angles can be referred.

It is a reliable mechanical pilot of never-failing accuracy, capable of correcting disturbances at their inception.

It relieves the pilot of nervous and physical fatigue incident to flying, allowing him to make those observations for which an observer has hitherto been required.

It, unlike the pilot, is unaffected by fog or darkness.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The following appeared on April 13th:—

ELLIOTT.—On April 11th, at Taplow House, Bucks, the wife of James Bogue Elliott, Lieut., Rifle Brigade and R.F.C., of a daughter.

* * *

An unofficial message from G.H.Q. dated April 9th says:—

A good specimen of a Fokker machine is now in British hands. A soldier, an ex-Guardsman, now Royal Engineers, was on his bicycle, when he came upon the scene of the landing. He saw an aeroplane clearly not of British pattern, and a figure standing by it. The idea that it was an enemy machine never entered his head. He admits that he took it to be a French aeroplane. He went up to the Boche and extended his hand. The German shook silently. The soldier then began to flounder in pigeon French. The Boche merely murmured.

The soldier then proceeded to investigate the trouble which had brought the machine to earth. Just then a party of Fusiliers came round a bend. Taking in the situation—a black cross aeroplane on the ground—they come on at the double, unslinging their rifles.

The engineer's presence of mind seems to have vanished. He took to his heels. The Fusiliers, concluding that he was a Boche trying to make away with papers or photographs, let fly. Happily their aim was not good. The soldier took a flying leap into a ditch and awaited capture. When he learned that he had missed the chance of making a capture single-handed his language was unrepeatable. The last straw was the chortling of the German, who had never moved and therefore was not fired at.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, April 12th.

The following Officer had the honour of being received by His Majesty, when the King conferred on him the Military Cross:—
Sec. Lieut. EDWARD LEGGATT, R.F.C.

* * *

BUCKINGHAM PALACE, April 15th.

The following Officers had the honour of being received by the King, when His Majesty invested them with the Insignia of Companions of the Order into which they have been admitted:—

THE DISTINGUISHED SERVICE ORDER.—Wing-Commander RICHARD DAVIES, V.C., R.N.

Major JOHN HEARSON, R.F.C.

The King then conferred decorations as follows:—

THE VICTORIA CROSS.—Wing-Commander RICHARD DAVIES, R.N.

On November 19th, this officer, in conjunction with Flt. Lieut. Gilbert Formby Smylie, R.N., carried out an air attack on Ferrijik Junction. Flt. Lieut. Smylie's machine was received with very heavy fire and brought down. The pilot planed down over the station, releasing all his bombs (except one which failed to drop) simultaneously at the station from a very low altitude. Thence he continued his descent into the marsh.

On alighting he saw the one unexploded bomb and set fire to his machine, knowing that the bomb would ensure its destruction. He then proceeded towards Turkish territory.

At this moment he perceived Wing-Commander (then Squadron Commander) Davies descending, and fearing that he would come down near the burning machine and thus risk destruction from the bomb, Flt. Lieut. Smylie ran back, and from a short distance exploded the bomb by means of a pistol bullet. Wing-Commander Davies descended at a safe distance from the burning machine, took up Flt. Lieut. Smylie, in spite of the near approach of a party of the enemy, and returned to the aerodrome, a feat of airmanship that can seldom have been equalled for skill and gallantry.

THE MILITARY CROSS.—Capt. CHARLES RYAN, Royal Field Artillery, attached R.F.C.

Lieut. DOUGLAS SYMINGTON, R.F.C.

THE DISTINGUISHED SERVICE CROSS.—Flt. Lieut. GILBERT FORMBY SMYLIE, R.N.

FRANCE.

The communiqué of April 11th says:—

This morning one of our pilots brought down a German aeroplane, which fell in our lines near Badonvillers. The two enemy aviators were killed in their fall.

During the night of April 10th-11th one of our bombardment squadrons on two different occasions dropped 27 and 21 shells on the stations of Nantillons and Brieulles. The same squadron rained projectiles on the emplacement of a long-range 15-in. gun.

* * *

The communiqué of April 17th says:—

On the night of the 15th-16th one of our gun-carrying aeroplanes attacked in the North Sea, at a height of about 300 ft., an enemy ship, upon which it fired 16 shells, the majority of which hit.

On the night of the 16th-17th one of our squadrons, consisting of nine aeroplanes, carried out, in spite of an intense mist, an important bombarding operation in the region Conflans-Pagny-Arnville-Rombach. The following bombs were thrown:—Twelve on the Conflans railway station, 16 on the Rombach factories, eight on the railway station of Arnville, and 11 on the railways of Pagny and Ars-sur-Meurthe.

During the night of the 16th our bombarding aircraft dropped 22 bombs on the stations at Nantillons and Brieulles (north of Montfaucon), 15 bombs on Etain (between Verdun and Conflans) and in the bivouacs in the Forest of Spincourt, and eight bombs on the cantonments of Viéville and Thillot—north-west of Vigneulles.

* * *

The record of Sous-Lieut. Hector Varcin would appear to beat that of most other aviators. He is 23, is a Knight of the Legion of Honour, and holds the Military Medal and Military Cross, the latter with seven palm-leaves, that is to say, clasps, each one meaning a mention in dispatches. He got his seventh palm-leaf on March 8th, when "attacked by two Fokkers he engaged both, and, although his machine was inferior, brought down one in the French lines and drove the second back to the Germans."

* * *

It was reported recently that a French aviator and his observer were hit a short time ago under rather peculiar circumstances. After crossing the enemy lines to locate artillery batteries they were encountered by a Fokker. The observer, Cabanes, was hit while operating the machine-gun. He fell on top of the pilot and clutched him in his death struggles, and the fact that the latter also got hit in the arm complicated matters. He managed, however, to throw his passenger off, and dived straight for his own lines in the hope of enticing the Fokker over anti-aircraft guns, but without result, so he flew on to a place where he knew medical attention was to be had and landed safely. Unfortunately, however, the observer was dead. It is to be hoped that this does not refer to M. Teulade Cabanes, who flew at the Blériot School in this country prior to the war.

* * *

"Le Journal" states that a new aeroplane has been invented, with a new kind of engine, which beats all the "records" of the world for speed. [Quite likely; but if it beats the 135 miles in the hour made by the Deperdussin and the Hanriot-Ponnier in 1913 it has done well. Those machines did over 140 on the straight, but had no climb worth talking about. One hopes the new French machine can climb.—Ed.]

* * *

A curious accident is reported to have happened recently in France when an aeroplane flew into a kite balloon cable and cut it.



Mijnheer Fokker, the Dutch aeroplane designer, and the Grand Duke of Mecklenburg-Schwerin. The Fokker works are at Görries, in Schwerin.

Two "Too Late"—One "Prepared."

Dear Sirs,

8th March, 1916.

On Jan. 23rd, 1916, a motor bus belonging to the L.G.O.C., Ltd., skidded into my Landaulette, which was fitted with Triplex Glass. Although my car was very seriously damaged, not a piece of glass became detached from any of the five windows or wind screen, in spite of the fact that one was cracked all over.

I was flung on to the large window in front and stunned, and the window was badly cracked; but owing to the fact that it did not break I was not cut, although the serious disfigurement due to bruising lasted several days. I think it practically certain that if this window had been fitted with ordinary plate glass I should have been fatally injured, as my head must then have been forced through the glass, with the most likely result that the main arteries of my neck would have been severed. Indeed, this very accident and result

happened to a doctor in London the week I met with my accident.

It may interest you to know that I had Triplex fitted to my car after a lady had been brought into my hospital, fatally injured by a piece of plate glass which had become detached from the window of her car in a collision.

You are at liberty to make what use you wish of this letter, on the distinct understanding that you delete my name and address if you ever use it for a printed advertisement; also you must not expose this letter to the public gaze, but I have no objection to you showing it to any bona fide enquirer.

Yours faithfully,

(Signed) ———

Messrs. The Triplex Safety Glass Co., Ltd.,
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N.B.—Use Triplex Safety Glass for Windscreens and Windows, Aeroplane Windshields, Observation Panels, Goggles, Night Landing Stages, etc.

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Telegrams: "Rodynalite, Phone, London."

Telephone: 2480 Willesden (9 lines).

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The occupant, nothing daunted, jumped out of the balloon basket with a parachute and alighted safely.

GERMANY.

The communiqué of April 11th says:—

Two enemy aeroplanes were brought down south-east of Ypres by means of our anti-aircraft guns.

* * *

The communiqué of April 12th says:—

In an air fight a French aeroplane was brought down near Ornes, in the Woevre; the pilot was killed.

* * *

The communiqué of April 17th says:—

Near Pervyse (Flanders) our anti-aircraft guns shot down an enemy aeroplane just behind the Belgian lines. Our artillery destroyed the aeroplane.

First Lieutenant Berthold brought down his fifth aeroplane, namely, a British biplane, north-west of Péronne. The pilot was dead, and the observer was seriously wounded.

* * *

The Wireless Press report of April 14th says:—

Rotterdam reports interesting details supplied by Dutch sailors returned from England about the last Zeppelin raids. Leith, Hull, Sunderland, Newcastle, and Grimsby suffered terribly.

In Leith harbour a British four-masted ship was completely destroyed. At the railway station a train was hit. A big spirit factory was also hit by an incendiary bomb and burnt down.

The Tyne bridge near Newcastle was almost entirely destroyed.

At Grimsby barracks were devastated and several hundreds of soldiers were buried under the ruins.

A large number of French anti-aircraft guns, together with French officers and soldiers, have recently been brought to England and are employed at several places.

The Press are officially informed that "these statements are so grossly exaggerated that it is only just possible to recognise the incident on which they may be founded."

RUSSIA.

The communiqué of April 14th says:—

Near the station of Seslavino one of our batteries brought down an enemy aeroplane, which came to earth near the township of Glubokoe.

On the left flank, near Chotin, at about 11 a.m. on April 12th, an enemy aeroplane coming from the direction of Bojan was met by our aeroplanes, and was forced to beat a retreat. At the same time another enemy aeroplane succeeded in reaching Ivantz on the Dneister, opposite Chotin, and in dropping five bombs, wounding a sentry. On hearing of this the Emperor, who at that time was reviewing troops six versts north of Jwane, gave orders that the wounded man should be decorated with the Fourth Class of the Order of St. George.

* * *

The communiqué of April 15th says:—

Yesterday our aeroplanes dropped 50 bombs on the stations at Zuczka and Northern Czernowitz.

All the machines returned undamaged.

* * *

The communiqué of April 17th says:—

The enemy is using aeroplanes bearing our distinctive circles on the wings.

* * *

It is reported that while the Tsar was reviewing an infantry division on the south-western front on April 12th two enemy aeroplanes appeared. The Russian artillery immediately opened fire and forced the aeroplanes to turn tail.

AUSTRIA.

The communiqué of April 15th says:—

Yesterday morning, soon after 5 o'clock, seven hostile aeroplanes, four of them battle-planes, appeared above Czernowitz and the railway establishments north of the town. Some of our aeroplanes ascended in pursuit, and succeeded, after a two-hours' fight in the air above Czernowitz, in bringing down a battle-plane. The hostile squadron fled. An aeroplane which had been hit fell headlong near Bojan, between the Russian lines and ours, where it was destroyed by our gunfire. The observer was killed. Our aeroplanes returned undamaged.

ITALY.

The communiqué of April 11th says:—

On the night of April 10th enemy seaplanes dropped 11 bombs on Grado. There were no casualties and only unimportant material damage was caused.

* * *

The communiqué of April 12th says:—

In addition to the part played by the Italian Navy on the occasion of the Austrian air raid on Ancona on April 4th, during which the Italian naval guns brought down three Austrian seaplanes, Italian naval machines have participated in other operations.

In the Lower Adriatic two Italian seaplanes alighted on the sea near the coast and the four officers landed, set fire to a signal station, destroyed a number of telegraph poles, blew up a small munition depot, ignited several coal stacks, and destroyed the landing-stage.

In the Upper Adriatic one of our dirigibles dropped about 1,000 lbs. of explosives on the railway station at Nabresina. All the bombs exploded, and the machines returned unharmed in spite of the lively fire of the enemy's artillery. Also in the Upper Adriatic naval anti-aircraft batteries brought down an enemy seaplane. Two naval officers in the machine were made prisoners.

GREECE.

It is reported that on April 14th, shortly after the Greek steamer "Miron," bound for Salonika, had left the Island of Thasos two German aeroplanes approached and dropped several bombs. The vessel succeeded in getting into Limena Bay, Thasos, without being hit. The report says: "The Greek flag was flying, and was also painted on the sides of the steamer, so that her nationality was easily distinguishable." The Greeks are greatly irritated as a result of this act of the Germans, and apparently forget that flags and devices on the sides of ships cannot be seen from above.

* * *

The "Morning Post" correspondent at Salonika, cabling on April 15th, says:—

So far as air-war in the Balkans has gone, the honours are easily with the French. Their raids on enemy encampments have become so frequent that one only records those of exceptional vigour. Their bombing expeditions against Monastir, and especially against Petritch, were of extraordinary violence and efficiency with which the German efforts against Salonika have never been able to compare.

* * *

It is reported that on April 16th the enemy camps at Strumnitza and Bogdantzi, north of Ghevgeli, were bombed by the French.

TURKEY.

The communiqué of April 16th says:—

On the night of April 14th-15th two hostile aeroplanes ascended from the Dardanelles and flew over Constantinople at a considerable height, dropping several incendiary bombs on two villages near the town, without causing any damage. Owing to our anti-aircraft fire the hostile aviators lost sight of their object and returned in the direction whence they came.

It is reported from Athens that during the recent raid on Constantinople two bombs burst in the War Ministry and another in the powder factory, which blew up.

There were numerous victims.

AUSTRALIA.

It is announced that the personnel of No. 7 Squadron, Australian Flying Corps, for service abroad is as follows:—

To be Majors—Major H. D. K. Macartney (Royal Australian Garrison Artillery), Captain A. A. Broun (Reserve of Officers, British Army).

To be Captains—Flight-Lieutenant S. Pickies (Royal Navy), Lieutenants W. Sheldon (Royal Australian Garrison Artillery), W. H. Anderson (Royal Australian Garrison Artillery), R. Williams, and D. V. J. Blake (Administrative and Instructional Staff).

To be Lieutenants—Lieutenant L. J. Wackett (Australian Imperial Force), R. Ross (Australian Engineers), D. T. W. Manwell (Australian Imperial Force), C. A. Kelly (Royal Australian Garrison Artillery), L. E. Cooke (Australian Engineers), C. J. Brookes (Royal Australian Garrison Artillery), A. M. Jones (Australian Flying Corps), R. S. Brown (Royal Australian Garrison Artillery), S. Woodrow (Administrative and Instructional Staff), F. H. McNamara (46th Infantry) (Brighton Rifles), E. G. Roberts (48th (Koooyong) Infantry); provisional: C. D. Merrett (51st (Albert Park) Infantry), A. W. L. Ellis (64th Infantry) (City of Melbourne Regiment), Warrant Officer P. H. Newland (Military Staff Clerk), Warrant Officer R. H. Chester (Aviation and Instructional Staff), A. D. Badgery, W. E. Hart.

* * *

The second 70 h.p. Renault-type aeroplane engine to be built by the Tarrant Motors Proprietary, Ltd., for the Defence Department has passed its preliminary tests. The fuel tests are said to have indicated a consumption of 4.1 gallons per hour at full bore. The carburettor and magneto were both made in Australia.

NEW ZEALAND.

The Minister of Defence for New Zealand has publicly announced that the Imperial Government will grant free passages for officers who are recommended by the New Zealand Defence Department for Air Service, but if they prove unable to graduate as military pilots after instruction they will be transferred for service with the infantry of the New Zealand Expeditionary Forces.

U.S.A.

The Aero Club of America has offered the American Government two high-powered aeroplanes of the latest type for use with the Mexican Expedition. A fund has been raised to pay for the machines and to buy further aeroplanes for the same purpose. The action has apparently been taken as a protest against the use of obsolescent or obsolete machines by the U.S. Army. That the U.S. Flying Corps should be supported by charitable contributions is merely another proof that history repeats itself.

The Aero Club of America has arranged for representative officers from the Militia of 14 different States to learn to fly at the Curtiss School, Newport News, Va., at the Club's expense.

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AEROPLANE BOAT VARNISH.

Suitable for both Seaplanes and Aeroplanes; it possesses the quality of not turning white under water, and can be used on the top of the Planes over the Dope.

LIQUID WOOD FILLER.

This may be used in place of White Shellac Varnish, and will be found to be more economical than the latter.

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This is Petrol and Castor Oil resisting, and may be used as a finishing coat on the top of the Planes over the Dope. It is made in Gloss and Egg-Shell Gloss qualities.

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are guaranteed by their makers (The SPHINX MANUFACTURING CO. Birmingham) *without time limit*, and are obtainable from all agents. —

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AVIATION EQUIPMENT

For the convenience of officers on week-end leave our Equipment Department will be open each Saturday until 5 p.m. on and after April 29. Entrance by private door at back of the premises, Kingly St.

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"War Paint," containing
many practical tips for
campaigners.

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of Tan Chrome Leather
lined Fleece with Opos-
sum Collar. £9/19/6

Cheaper quality plain
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The "Daily Chronicle" and Patriotic Effort.

One of the hall-marks of a successful man is that he shall have plenty of mud slung at him. Hence, doubtless, the attack on Mr. Pemberton-Billing which appeared in the "Daily Chronicle" of April 17th and 18th. Mr. Pemberton-Billing can, of course, afford to ignore these attacks as a personal matter, but those who support the policy for which he and Lord Montagu stand may like to know that while the bare outline of the alleged history of the Member for East Herts is more or less founded on fact the inferences which are seemingly suggested to be drawn therefrom are entirely false.

That Mr. Billing has had a remarkably varied career was stated in this paper many weeks ago. That career probably accounts for the ability with which he has met and defeated the Coalition machine on two occasions, despite the mud slung at him, and despite the subterranean intrigues used against him by highly placed politicians.

One cannot fail to be struck by a curious resemblance between the articles in the "Chronicle" and an article by a Mr. Ledeboer, to which reference was made recently in this paper. Possibly I am doing Mr. Ledeboer an injustice in this matter, but I gather, in any case, that he has quite understandable personal reasons for disliking Mr. Pemberton-Billing, and, therefore, one cannot quarrel with his attack, but only with his methods.

One notes that in the paper to which he now belongs—a paper which bears the same name as one of the earliest of aeronautical journals—his attack has collapsed and dwindled down to a feeble attempt to incense the Aircraft Industry against Mr. Billing by insinuating that the use of the term "Fokker Fodder" is an insult to British constructors. On sober consideration Mr. Ledeboer must know that the term was applied by Mr. Billing to the products of the Royal Aircraft Factory *after* it was in common use by the R.F.C.—and Mr. Ledeboer may be pleased to note that the General Officer Commanding R.F.C. in France refuses to have any more "F.F." type machines—hence, no doubt, certain recent War Office appointments.

The inference in the "Chronicle" article that by coining and using this term, "Fokker Fodder," Mr. Billing was frightening young officers from crossing the German lines is an insult to the R.F.C., as well as a misstatement of fact.

The "Chronicle" produces as evidence a singularly ill-informed letter from a person at Harrow, in defence of the R.A.F.'s products with which it may be well to deal later.

The statement that Mr. de Broughton is the sole financier of Pemberton-Billing, Ltd., is also untrue, and Mr. de Broughton himself states that he "has never had the privilege of paying Mr. Pemberton-Billing's debts"—as the first "Chronicle" article suggests he had done.

THE S.B.A.C.

The Society of British Aircraft Constructors held its first meeting on April 13. The following Committee of Management was elected.

Mr. H. White Smith (Chairman of the Council), British and Colonial Aeroplane Co., Ltd.

Major H. F. Wood, Vickers Limited.

Mr. R. O. Cary, Sopwith Aviation Co., Ltd.

Mr. G. Holt Thomas, Aircraft Manufacturing Co., Ltd.

Mr. Howard T. Wright, J. Samuel White & Co., Ltd.

Mr. H. V. Roe, A. V. Roe & Co., Ltd.

Mr. E. B. Parker, Short Bros.

Mr. L. Coatalen, Sunbeam Motor Car Co., Ltd.

Mr. E. W. Pether, Westland Aircraft Works.

Mr. H. White Smith was unanimously elected Chairman of the Council of the Society.

The principal objects for which the Society is established are to encourage, promote and protect the British Aircraft Industry and to act as the representative of the Members of the Society in matters affecting the industry.

The list of firms forming the Society is most comprehensive, and includes nearly all aircraft firms of importance. It would be wrong to make public the complete list of members, for such a list would give the enemy valuable information concerning many new sources of supply of aerial munitions which did not exist before the war, but it may be stated that the S.B.A.C. is a fully representative body. It is certain that there are many directions in which the Society can be of real value and importance to the British Aircraft Industry, such as in securing for it a proper hearing from high officials during the war, and in promoting the commercial development of aviation after the war.

Members of the Society must be engaged in the British Aircraft Industry. There are two classes of members, namely, Ordinary Members and Associate Members, Ordinary Membership being confined strictly to constructors of aircraft and aircraft engines. Associate Members will thus be makers of accessories or concerned in allied trades. The entrance fee for Ordinary Members is £30, and the annual subscription £20. The entrance fee, for Associate Members is £15, and the subscription £10.

Firms who have not yet joined the S.B.A.C. may obtain full particulars from the Secretary (pro tem.), Mr. Charles V. Allen, St. Stephen's House, Victoria Embankment, S.W.

Mr. Lanchester is quoted by the "Chronicle" as saying that Mr. Pemberton-Billing's claims to be a successful designer and builder of flying machines are "pure moonshine." The testing department at the Admiralty know whether this is true or not. If he has not been successful it is difficult to explain how both the old and new works of Pemberton-Billing, Ltd., have been working overtime on Admiralty aircraft throughout the war.

Mr. Ledeboer's paper is quoted as authority for saying that Mr. Billing has not been connected with the active Air Service at the front. This statement is also untrue.

A very underhand method of creating prejudice appears in the "Chronicle's" statement, apropos the works of Pemberton-Billing, Ltd., at Woolston, that "the only machine delivered before the war was one seaplane, called a 'bat-boat,' which was built for the German Government." This machine was not built by or ordered from Pemberton-Billing, Ltd., but was the property of another firm, which then rented part of the Woolston works, and Pemberton-Billing, Ltd., had no interest in it whatever.

Similarly, an attempt is made to prejudice him by saying that in endeavouring to sell licences to use his patents before the war—an advertisement taken, if I am not mistaken, from Mr. Ledeboer's paper, is reproduced to prove it—he "invited applications from Germany among other countries." The insinuation would be puerile in any country where the average intelligence was moderately high. One might as well accuse Mr. Ledeboer himself of being a German, because his name resembles that of a member of the Reichstag or because he was educated at Bonn.

Considering that at the date of that advertisement we were buying from Germany at the rate of some millions of pounds a week, the attempt to sell a licence to use German patents in Germany, and thus bring German money into this country seems rather praiseworthy. Possibly the idea upsets the "Chronicle's" ideas of Free Trade.

The whole attack is based on similarly puerile grounds, and seems to be merely a political trick to try to discredit Mr. Pemberton-Billing in the eyes of the voters of Wimbledon, and thus to discredit Mr. Kennedy-Jones, whom he is supporting.

It is lamentable that any political Party should sink to such depths to injure men whose sole endeavour it is to improve the defensive and offensive power of this country. One is, however, glad to see that the attack is open and above-board instead of underground, as it was at Mile End and East Herts. It seems unlikely, however, that frontal attack will succeed where mining operations failed. One may expect to see at least a knighthood for the editor of the "Chronicle" if Mr. Kennedy-Jones fails to get into the House for Wimbledon, even though he is not discredited.

ANOTHER NEW ASSOCIATION.

The Association of British Motor and Aircraft Manufacturers, Ltd., 173, Fleet Street, E.C., has been registered as a company limited by guarantee, with 100 members, each liable for £1 in the event of winding up. Its declared objects are to protect the British motor and aircraft industry, which expression includes companies, firms and persons carrying on within the U.K., Channel Islands, India, or in any Colony, Dependency, or Possession of Great Britain. The subscribers are: Messrs. E. Manville (Chairman, Daimler Co., Ltd.), F. R. Simms (Chairman, Simms Motor Units, Ltd.), F. W. Shorland (Managing Director, Clement Talbot, Ltd.), J. M. Young (Secretary, John I. Thornycroft and Co., Ltd.), R. Dennis (Managing Director, Dennis Bros. (1913), Ltd.), H. T. Vane (Managing Director, D. Napier and Sons, Ltd.), A. Spurrier (Director, Leyland Motors (1914), Ltd.), H. Johnson (London Manager, Joseph Lucas, Ltd., Birmingham), S. Straker (Managing Director, Straker-Squire (1913), Ltd.), H. C. B. Underdown (Chairman, Commercial Cars, Ltd.), G. Young (Director, Albion Motor Car Co., Ltd.), F. Boyle Monkman (London Manager, Halley's Industrial Motors, Ltd.).

The management is vested in an Executive Committee, the first members of which are E. Manville and A. Spurrier. Only persons engaged in the British motor and aircraft industry are eligible for membership of the Committee. Secretary, H. Wyatt.

One assumes that the Association is in reality an offshoot of the Society of Motor Manufacturers and Traders, in that all the names mentioned above are more or less prominently associated with that body, whereas none of them were commercially interested in the Aircraft Industry before the war.

The Aero Section of the S.M.M. and T. promoted the various shows at Olympia, but made no effort to influence the S.M.M. and T. as a whole to bring its weight to bear on those who were hampering the development of aircraft. It was probably because of that omission that the Society of British Aircraft Constructors was formed recently.

One trusts that there may be no jealousy or friction between the two bodies, and that the A.B.M.A.M. will recognise that the S.B.A.C. does in reality represent the Aircraft Industry. As a stand-by, ready to lend additional weight to the work of the S.B.A.C., the A.B.M.A.M. may be exceedingly useful, especially if it can command the influence of the S.M.M. and T. when needed.

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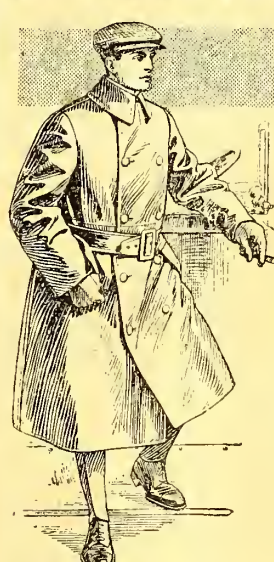
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THE DOVER AFFAIR.

Edgar Charles W. Middleton, formerly a probationary Flight Sub-Lieutenant in the Royal Naval Air Service, was brought before the Dover magistrates on April 13th charged with an alleged offence under the Defence of the Realm Act.

It was stated that he was attempting to elicit information with respect to the movements or disposition of R.N.A.S., such as might be of value to the enemy.

Major Dorchill, intelligence officer, was present. Mr. Ernest Chitty, prosecuting for the Admiralty, said that defendant, while in the R.N.A.S., was quartered at Dover. At the present time, however, he appeared to be a journalist, and wrote articles for the "Daily Mail" under the signature of "An Air Pilot."

He came down to Dover and interviewed at least three officers of the R.N.A.S. Two of them he met in the street, and to inquire for the third one he went specially to the seaplane station. All were officers whom he had met previously while at Dover, and in conversation with them he said "he had come down to Dover to do a bit of spying for Pemberton-Billing."

Mr. Chitty said that he did not use the word "spying" in the traitorous sense, but as obtaining information which he was not entitled to obtain. Middleton also said to one officer "he was doing spying for Pemberton-Billing and for the 'Daily Mail,' which was running Pemberton-Billing."

He invited the officers to lunch, and during conversation he endeavoured to obtain such information as was clearly directed to the point as to the readiness or unreadiness of the R.N.A.S. to meet a sudden aerial attack.

He wished to know where they were quartered and as to their proximity to the post whence they were to start. He wished to obtain information really as to the preparedness of the Air Station at Dover to meet attack. Obviously, it would be of some use to the enemy to know where or to what extent the air forces of Dover were prepared to meet a sudden air raid.

As defendant is acquainted with all the officers at Dover, it is not desirable that he should be left at large while the Admiralty are making inquiries. When the case was heard Mr. Chitty thought it should be in camera.

Detective-Inspector Mole, Scotland Yard, attached to Headquarters, Dover Garrison, said he saw defendant at the Grand Hotel having lunch with Flight-Lieut. Cannon, R.N.A.S. Middleton accompanied him to the office of the Vice-Admiral, Dover Patrol, where he received instructions to convey defendant to Dover Police Station. When the charge was read over to him defendant replied: "I deny it wholly and entirely. What I have said, it is only to my friends in the Air Service whom I know, and it is purely a personal matter."

Mr. Foulkes Jones, for the defence, said, "I would say that Mr. Middleton is a journalist. He was formerly in the Air Service, but was invalided as a consequence of nervous breakdown 13 months ago, since when he has been engaged in journalism. He was here for a perfectly innocent reason, engaged in journalistic work, making inquiries into a matter which has been the subject of inquiry in Parliament and in the country for many weeks past. When the time comes, I think he will be able to satisfy you he was perfectly innocent in the matter."

The Bench remanded defendant in custody for a week. He is to be given facilities for seeing his solicitor.

The case being *sub judice*, one can make no comment thereon. One may, however, record the fact that Mr. Pemberton-Billing promptly issued a writ against the "Globe" newspaper, which issued on the day on which Middleton was arrested a poster reading "Spying for Pemberton-Billing—Airman Arrested." The inference is fairly obvious.

THE LIBERAL WAR COMMITTEE AND THE AIR.

The Liberal War Committee met on Tuesday, April 11th, under the chairmanship of Sir Frederick Cowley. During the deliberations the Committee passed a resolution in favour of the establishment of a Ministry of the Air.

THE NAVY LEAGUE AND AVIATION.

The Executive Committee of the Navy League has unanimously decided that the establishment of a Board of Aviation with full executive powers and under the direction of a Minister with a seat in the Cabinet has become a national necessity for the successful prosecution of the war.

In order to give expression to public opinion on the urgency of this question the Navy League has arranged a public demonstration to be held at the Queen's Hall, Portland Place, W., on Friday, April 28th, at 2.30. The chief speaker will be Lord Montagu of Beaulieu, who will be supported by members of both Houses of Parliament and other public men representative of all political parties. An invitation is being addressed to the Lord Mayors and Lord Provosts of the principal cities in the Kingdom to be present.

The Queen's Hall meeting will be followed by public meetings in the large cities throughout Great Britain.

The Committee appointed by the Navy League for the promotion of a campaign on behalf of a Board of Aviation is as follows:—Mr. Robert Verburgh (Chairman), His Grace the Duke of Somerset, Mr. Wilfrid Ashley, M.P., Mr. A. Shirley Benn, M.P., Colonel Walter Faber, M.P., Mr. Rupert Gwynne, M.P., Mr. Basil Peto, M.P., Admiral the Hon. Sir E. R. Fremantle, Admiral Sir S. Eardley-Wilmot, Mr. Arnold White, Colonel F. A. Lucas, Colonel Welby, Professor A. Bostock Hill, Mr. V. Biscoe Tritton.

The Navy League has here a great opportunity for doing good work, and one hopes sincerely that the Committee indicated above will obtain their technical information from people who know their subject, and will not make the common mistake of embarking on an energetic campaign without full knowledge of their facts.

It will be remembered that the Navy League did valuable propagandist work for aviation some few years ago, and on that occasion a committee was formed which included various well-informed technical men.

THE R.N.A.S. COMFORTS FUND.

Two cases of comforts have been sent to a seaplane depot in the East and a number of novels to the library at the R.N.A. Station, Felixstowe. A supply of comforts has been dispatched to a South Coast Airship Station.

Two C.P.Os. have sent the following letter to Mrs. Sueter: "On behalf of the chief petty officers, petty officers, and men of No. 1 Wing, R.N.A.S., we beg to express thanks to Mrs. Sueter for all the various presents which she has kindly sent us, and to say how very much they have been appreciated."

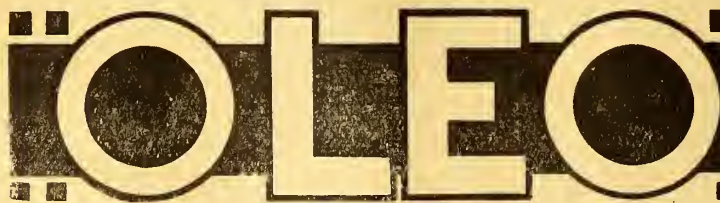
The following cash contributions have been received: The Sunbeam Motor Car Co., Ltd., £20; employees, Aircraft Manufacturing Co., Ltd., collection, 18s. Total to date, £1,813 13s. 1d.

Contributions in cash and kind should be sent to Mrs. Sueter, The Howe, Watlington, Oxon.

LORD MONTAGU AT BROCKENHURST.

Lord Montagu of Beaulieu, speaking at Brockenhurst on April 15th, in the New Forest Division of Hampshire, which he so long represented in the House of Commons as the Hon. John Scott-Montagu, said there were two great problems rightly agitating the mind of the country at present—how to get enough men to carry on the war and how to establish an efficient Air Service. The Government were doing their best, but it was probably a case of too many cooks spoiling the broth. When they had twenty-three eminent gentlemen, anxious, he was perfectly certain, to do their best, trying to come to a decision it must be very hard to come to a decision at all.

As to the Air Service, they had divided administration and all the evils attendant upon it. As the child of aviation grew to be a man they must take him out of the hands of the two people who were quarrelling about him and give someone full control. Therefore, though committees might do some good, they must before long have a Board of Aviation which should have, at any rate to begin with, the whole question of supply in their hands.



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Readers of THE AEROPLANE are by now familiar with the fact that Messrs. Robinson and Cleaver are sparing no pains to meet aviators' requirements in clothing and equipment. The spacious department on the first floor at their handsome premises in Regent Street attracts daily an increasing number of flying officers of both Services in search of comfortable, durable and not too expensive garments for the air, and the reputation which this firm is building up is undoubtedly a high one.

It is evidently due in the main to the genuine personal interest in aircraft and the needs of those concerned which is shown by the management and staff, who are always anxious to learn how they can be of service to those who fly. In this way, guided by the experiences of men on active service, new designs in clothing are continually being evolved.

The latest idea is worth special mention. It consists of a black leather chrome dressed coat, of the type supplied to the R.N.A.S., but instead of the usual fleece lining it is lined with "Credem," the remarkable natural product which is now coming into general use because of its life-saving properties.

The idea is a most ingenious one, reflecting great credit on its originator, who, one ventures to hope, may be allowed to reap some reward in this world, whatever may await him in the next. The pilot whose duties take him across water can now provide himself with a leather coat, lined with a material which is lighter than cotton fleece, warmer than wool or fur, damp-proof, and capable of supporting him in the water for a considerable period.

One of these coats was put to a severe test a few days ago. A man wearing one, and weighted with heavy hob-nailed boots and a pair of 8-lb. dumb-bells, was pushed into some public baths in the West End, and strenuous efforts were made to drown him, but he bobbed up again as obstinately as the notorious dummy gun. The construction of the garment is such that the wearer floats in a reclining position on his back, with his head well out of the water, and consequently the subject of the experiment, like the cost of living, refused to go down.

There should be a big demand for this coat, which has been christened "The Racobal," a name suggested by the initials of the words, "Robinson and Cleaver, of Belfast and London." The price of the usual five-guinea R.N.A.S. coat when lined with Credem is six guineas, and coats now in use can be relined with this material at a very moderate charge.

Another useful novelty introduced by the same firm consists of a leather flying cap which has special ear-straps adjustable for holding in position wireless receivers. The device is extremely simple, and when not in use can be rolled up in front of the ears or fastened over them.—D. W. T.

TUBE WORK FOR AEROPLANES.

Although, of course, the work for which Accles and Pollock, Ltd., of Oldbury, are chiefly noted in connection with the aeroplane industry is the manufacture of steel tube, nevertheless, the firm does a large amount of high-class manipulative work for aeroplanes, such as tubular rudder frames, exhaust pipes, and manifolds and similar articles.

Accles and Pollock are also sheet metal workers, and can, therefore, combine tubular and sheet steel parts for aeroplane manufacturers, who would save much time if they put such parts out to a firm which has such magnificent facilities for turning out the work. The aero department has been recently enlarged, and the firm are now in a position to take up fresh and extra work.

BUMBLEDOM AND THE AIR.

At the meeting of the Association of Municipal Corporations held at the Guildhall on April 14th, Mr. Stone (Canterbury) moved a resolution declaring that the Government scheme of insurance against aircraft and bombardment was unfair and that the expense of damage caused by hostile aircraft and bombardment should be borne nationally out of the Imperial revenue.

Alderman Allen (Croydon), seconding the motion, said the lodging-house keepers on the East and South-East Coasts had been practically ruined by raids.

Mr. Hugh Edwards, M.P., said it was not the fault of a person if his house was blown up, and he was entitled to have the loss made good by the State.

Mr. Henderson (Norwich) said it might be urged that every one could insure, but even then the case against the scheme was still strong. If there was to be universal payment, the method of the insurance scheme was the most costly and complicated that could be adopted. If there was not to be universal payment, then the burden fell upon localities. In the case of the raid on the Midlands, which every one, including the Government, thought was safe, scarcely anyone was insured.

The motion was carried by a large majority.

The Mayor of Margate moved the following resolution, but, after discussion, withdrew it in deference to various objections:—

"That this meeting respectfully requests H.M. Government to take, as speedily as possible, all steps within their power to defeat the object of the enemy by the provision of additional searchlights, anti-aircraft guns, and properly equipped aero and waterplane stations along the East and South-East Coasts of England."

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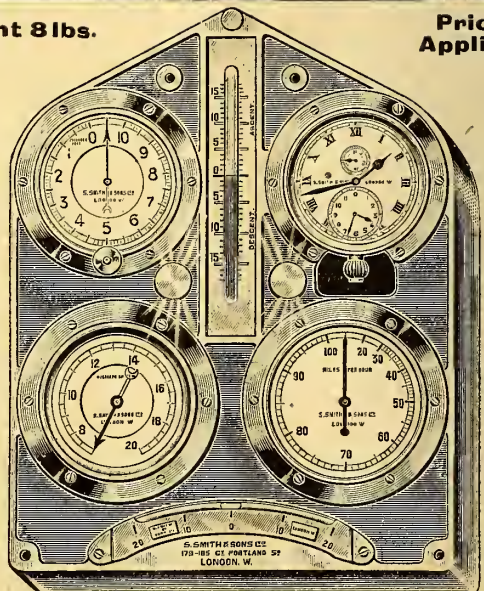
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Offers should be addressed to Major Caddell, Military Aeronautics Directorate, War Office.

The only lenses which are named as suitable are the Zeiss or Ross-Zeiss Tessar f/4.5 and f/3.5, 8½ in. and 10 in.; the Heliar f/4.5, 8½ in. and 9½ in.; and the Ross Xpres f/4.5, 8½ in. and 10 in. The makers' original list prices, ranging from £10 to £20, are offered for lenses of the kind required.

QUESTIONS IN THE HOUSE.

On April 17th, Dr. Macnamara, replying to Mr. Joynson-Hicks (Brentford, U.), said:—The grant of prize bounty under the Naval Prize Act, 1864, is limited to such of the officers and crews of his Majesty's ships of war as are actually present at the taking or destroying of any armed ship of any of his Majesty's enemies. Legislative authority will be required for any amendment. It is the intention to extend the award to aircraft.

Mr. Tennant (Berwickshire) informed Mr. Bryce that correspondents of American newspapers were permitted to interview the officers of the Zeppelin captured near the mouth of the Thames, and that such permission was granted by the War Office.

Mr. Ashley (Blackpool, U.): Were similar facilities given to correspondents of English newspapers? Mr. Tennant: I cannot say without notice. Sir A. Markham (Notts, Mansfield, L.): Is there any reason why British correspondents should not have such facilities? (Hear, hear.) Mr. Tennant: No, Sir; none. Sir A. Markham: Why did not they have them, then? Mr. Tennant: I am not quite sure that this will form a precedent.

Sir A. Markham (L., Notts, Mansfield), asked the Prime Minister whether he had any information that for the first nineteen months constant friction and jealousies had existed between the War Office and Admiralty in connection with the Air Service; whether he was aware that the Admiralty and War Office had had separate staffs of designers; that the trials made by one Service of new machines were not in many cases either witnessed by, or communicated to, the other Service; that the two Services had been competing against each other for the purchase of engines abroad and at home; would he say when he first became acquainted with this state of affairs; and whether the responsible persons would be removed from their offices.

Sir A. Markham also asked the Prime Minister if he would state the reason why Lord Derby and Lord Montagu had resigned from the Joint Committee charged with the business of the Air Service.

Mr. Asquith: I must ask my hon. friend to await a statement I intend to make before the House rises.

PALMER CORD AERO WHEELS.

The Palmer Tyre, Ltd., has issued a neat wall card with a celluloid front illustrating the standard-sized Palmer wheels and tyres, and setting forth the hub sizes, etc., in tabular form. The card should serve as a useful reminder on the aeroplane drawing office wall, and applications for copies from responsible persons to 119, Shaftesbury Avenue, W.C., will receive prompt attention. THE AEROPLANE should be mentioned when writing.

THE STURTEVANT ENGINE.

The B.F. Sturtevant Co. are producing their Model 5 140 h.p. "eight vee" engine with carburettor specially arranged for gravity feed.

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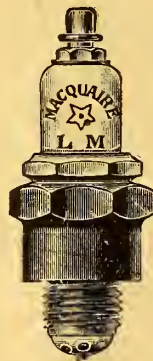
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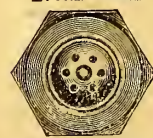
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Mr. M. A. S. Riach describes his work entitled "Air Screws" as an introduction to the aerofoil theory of screw propulsion, and he certainly treats his subject with great care and detail. This book is really the first authoritative work published on the properties of the air-screw, and it is strongly to be recommended to the earnest student of aviation.

The book is published by Crosby Lockwood & Son, 128 pp., 10s. 6d. net, or post free 10s. 10d. from the Wm. Dawson Publishing Co., Ltd., Rolls House, Breems Buildings, E.C.

THE WOOLER ENGINEERING COMPANY.

Near Willesden Junction are to be found the works of the Wooler Engineering Company, Ltd., a firm which, prior to the outbreak of war, was engaged chiefly in the production of motor-cycles. Its plant was eminently adapted for the production of aircraft fittings, and this useful branch of trade was promptly taken up, with such satisfactory results that the plant had to be doubled.

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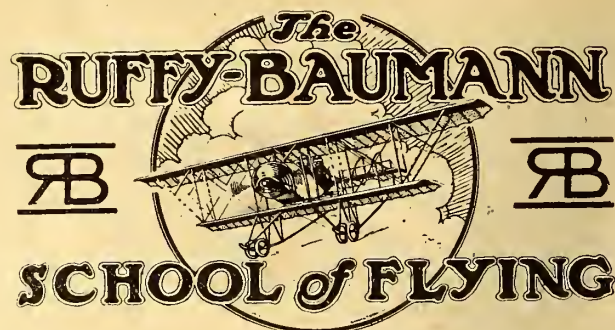
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A WARNING TO THE TRADE.

The latest activity of the self-styled "Aeronautical Institute of Great Britain" is by no means uninteresting to the trade. Apparently a circular letter has been sent round the trade purporting to come from the Aeronautical Production Committee of this "Institute," and stating that the said alleged "Committee" would be much obliged to the firm to whom the letter is addressed if the said firm would send them the latest edition of their catalogue, together with such additional information as would be considered of interest to prospective buyers.

This request would appear to be perilously close to an infringement of the Defence of the Realm Act, seeing that it is in effect an attempt to procure information concerning war material. The only possible buyers to whom aircraft manufacturers could sell their goods are the Admiralty and the War Office, or through them by special permission to the Flying Services of our Allies. Therefore it must be illegal to give detailed information concerning aircraft to anyone not officially connected with the Allies' Services.

It would be well for members of the aircraft industry to be very wary about giving away such information as that requested, and in any case, this self-constituted "Institute" seems to have no status which would justify anybody in the industry in wasting time and paper in corresponding with it.

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In the book under review he deals in detail with the general arrangement of small factories with a view to speeding-up output. Such subjects as the arrangement of factory departments, the selection of men and charge-hands, the arrangement of tools, stores, and instruments, systems of work-taking and progress records, all ably handled.

Those men in the aircraft industry who are ambitious to become something more than human machines, and who have an eye on future jobs as works managers or departmental managers, will find in the book very much which is to their advantage.

The price of the book is 1s. 6d., post free, from the Wm. Dawson Publishing Co., Ltd., Rolls House, Brems Buildings, London, E.C.

FUNERALS BY AEROPLANE.

The New York correspondent of the "Daily Telegraph" reports that at the recent dinner of the Aeronautical Society of America the head of one of the largest undertakings concerns in that city announced that he was preparing to conduct funerals by aeroplanes in the near future. "To be in style," he said, "one must make arrangements to have mortal remains carried on a swift sombre-hued biplane to the final resting place." He declared that the roof of his establishment would soon be fitted up with a landing-place for aircraft, and "all conveniences for mourners."

No one but an American could have thought of this. It is to be hoped that the enterprising Mr. Selfridge will not feel moved to follow the lead of his fellow-countryman. The roof of his handsome premises in Oxford Street might possibly be adapted for the starting-place of one's last joy-ride, but the average London cemetery offers poor landing accommodation. The spectacle of one of Hendon's favourites piloting an over-loaded biplane, wearing meanwhile a tall hat and black-edged Triplex goggles, and followed by other machines bearing the friends of the deceased, would be worth seeing. There may be aeroplanes in this country slow enough for a funeral, but most people will be content to patronise the old-fashioned horse-hearse.—D. W. T.

WHAT'S IN A NAME?

The daily Press reports that "Queenie Zeppelin King" is the name in which a baby girl born in the course of the recent raid on the North-East Coast has been registered.

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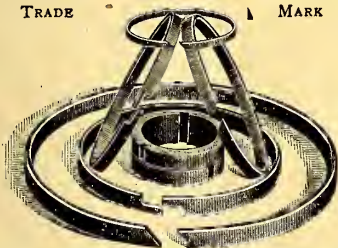
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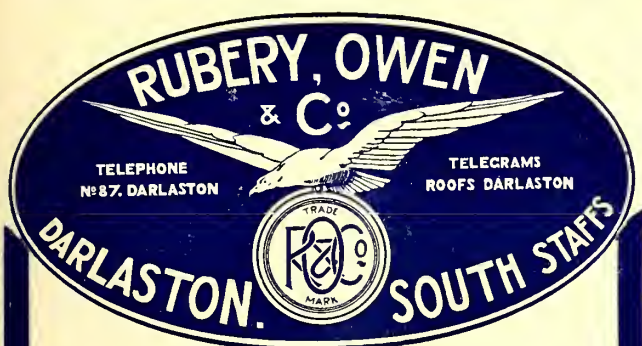
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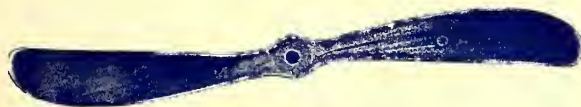
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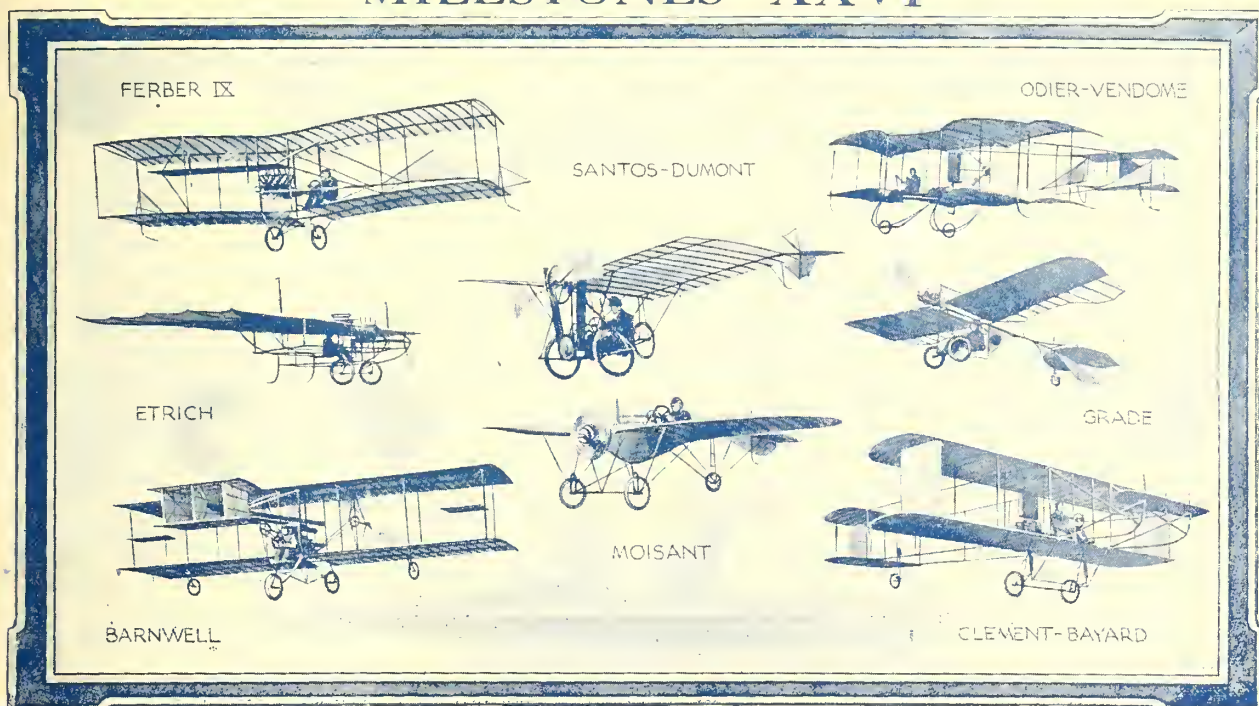
Edited by C. G. GREGG

Vol. X. No. 17

ONE PENNY WEEKLY

[Registered at the G.P.O.,
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MILESTONES—XXVI



In 1908 and 1909 a number of detached experimental machines were turned out in various countries which attained a certain measure of success. The late Captain Ferber made a primitive tractor biplane in 1908. The Odier-Vendome biplane was a curious bat-winged pusher biplane built in 1909. The tailless Etrich monoplane, built in Austria in 1908, was an adaptation of the Zauonia leaf. M. Santos-Dumont made a number of primitive parasol type monoplanes known as "Demoiselles," in which bamboo was largely used. The 1909 type is seen above. A curious steel monoplane was built by the late John Moisant in 1909. The twin-pusher biplane, built by the Barnwell Brothers in Scotland, made one or two straight flights also in 1909. The Clement-Bayard Company in France constructed in 1909 a biplane which did fairly well. Hans Grade, the first German to fly, made his early efforts on a "Demoiselle" type machine in 1908.

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ON THE HISTORY OF THE ROYAL AIRCRAFT FACTORY.

At this juncture in the development of aeronautics it seems well to set forth as briefly and as dispassionately as may be something of the history of the Royal Aircraft Factory, so that the influence of that establishment on the British Flying Services and on the production of British aircraft may be fairly appreciated by those whose lives and livelihood depend on aeroplanes and airships.

During the past year or eighteen months thousands of officers and men have joined the Flying Services who never took any interest in flying before, and they lack the first-hand knowledge of this history possessed by those of us who have been connected with flying since it first began. Similarly tens of thousands of workmen have entered aircraft factories in the stated period, and hundreds of Government officials have been brought into contact with the new industry, art, or science—call it what you will. It is for these new-comers that these notes are written, though possibly they may serve to refresh the memory of some of the old hands also.

The Royal Aircraft Factory started life as the Balloon Factory, Royal Engineers. When aeroplanes were introduced into the Army in 1910-11 they were handed over to the Sappers, for the "Air Battalion, R.E." The Balloon Factory was then turned into the "Aircraft Factory," and Mr. Mervyn O'Gorman, an electrical engineer, who was also in some way connected with the motor trade, was placed in charge.

At first this establishment concerned itself chiefly with airships, adapting to its own purposes the swivelling propeller gear invented and patented by Mr. E. T. Willows.

Its airship experiments were not remarkable for their success, apart from sundry improvements in design introduced by such officers as Capt. Maitland, Lieuts. Waterlow, Fletcher, and Hetherington, which showed great promise if they had been developed. The work done by the Factory itself was not brilliant, and on more than one occasion airship crews had narrow escapes from disaster, owing to badly made parts giving way. Many details, especially in the use of steel tube, showed unfamiliarity with the strength and suitability of materials. Eventually the airships were taken over by the Navy.

WHAT "B.E.," ETC., MEANS.

It was early in 1911 that the Aircraft Factory really got to work, and on March 8th, 1911, Mr. O'Gorman announced at the Society of Automobile Engineers the meaning of lettering which has stood ever since, for the R.A.F.'s machines. These are (a) the "B.E." type, standing for "Blériot Experimental," as M. Blériot was credited with originating the tractor type machine; (b) the "F.E." type, or Farman type, the "pusher" being credited to Mr. Farman—although Voisin was earlier; (c) the "S.E." type, or "tail-first," or "canard" type, this being credited to M. Santos-Dumont. It will be noted that no credit was given to any British constructor, although Mr. A. V. Roe could claim to have already done well with a tractor biplane, and Mr. S. F. Cody with a pusher.

That note seems to have dominated the Aircraft Factory

Staff ever since, for no credit has ever been given by any member of the staff to any British constructor. Where it has been absolutely impossible for the Factory itself to assume or claim credit, whether for engines, aeroplanes, or accessories, the credit has been given to foreign firms.

At a later date "S.E." was taken to stand for "Scouting Experimental"—the tail-first type having become obsolete—and the "R.E." type, standing for "Reconnaissance Experimental" was introduced. The former represented the small high-speed machines, otherwise known as "tabloids," or "bullets," first introduced to the world by the Sopwith Co., and soon afterwards by the Bristol Co. The "R.E." type is a heavy two-seater, bigger than the "B.E." type.

THE MAKING OF THE R.A.F.

Early in the career of the Aircraft Factory, Mr. Geoffrey de Havilland, who had been experimenting privately at Newbury, joined the staff, and carried on experiments with improvements in Farman type machines, and late in 1911 he produced a highly successful tractor biplane with a Renault engine, which was the original of the B.E. type as now known.

The tractor biplane had been developed in this country early in 1911 by Mr. A. V. Roe, who for lack of means to buy a high-powered engine had to be content with a 35-h.p. Green, which did extraordinarily good service. Mr. Pixton (now Captain, R.F.C.) flew this machine to Brighton and back in June, 1911. In August, 1911, an Avro with a 35-h.p. Green, belonging to Lieut. (now Captain) Schwann, R.N., left the water at Barrow-in-Furness, and was the first British machine to get off sea water.

The Factory's first attempt at an original machine was a "canard" of particularly unpromising design. This machine was described in THE AEROPLANE of July 6th, 1911, before it had flown, and it was pointed out that it was dangerous. On August 18th it got out of control and killed its pilot, Mr. Theodore Ridge.

Early in July, 1911, the War Office announced that an aeroplane competition would be held in 1912, and the conditions were announced early in that year. Mr. de Havilland's second tractor biplane, known as the B.E.2, though not in the competition, went through the tests and put up a very fine performance. His reputation, thus acquired, has been the chief asset of the R.A.F. ever since.

The B.E.2 was adopted as a standard type for the Army in 1913, but when the staff of the R.A.F. got to work to produce it in quantities, alterations, for the worse, in detail design were made, and certain experimental errors made by Mr. de Havilland were perpetuated. As a result, although these machines flew well, they were dangerous in several ways, notably in wing construction and rudder attachments. Two officers were killed through wings collapsing, and so late as March, 1914, all flying on B.E.'s was suspended for a period owing to the belated discovery that the rudder posts were weak.

Even in June, 1914, during the R.F.C. concentration on Salisbury Plain, one officer's rudder-post crumpled up and caused a nasty smash.

A CONTRAST.

Early in 1913, Mr. A. V. Roe produced a tractor biplane with an 80-h.p. Gnome, which, although the engine gave only some 65 h.p., easily beat all the performances of the B.E.2, which was fitted with a 70-h.p. Renault.

About this period the R.A.F. produced the B.E.4, without Mr. de Havilland's assistance I gather, and fitted samples of the type with 50-h.p., 70-h.p. and 80-h.p. Gnomses. All were bad fliers, and dangerously unstable on a turn. Their detail design was bad also, and one of the first three turned over to the R.F.C. killed two officers owing to the rudder breaking off in the air.

A variant of this type, the B.E.8, was produced in 1914, with an 80-h.p. Gnome. Its performance never approached that of the Avro, but a large number were ordered nevertheless. The three which first went on active service all came to a bad end. One got into the uncontrollable dive for which the type was noted, and killed both pilot and passenger. Another killed the passenger. And the third merely broke itself.

THE FATAL F.E.

The F.E.2, a "pusher" with a Renault engine, was produced in 1914, and was also uncontrollable in certain positions, the first of the type killing its passenger. As a fighting machine it was not so good as the standard 80-h.p. Farman biplane of the period.

During 1914, the Factory—by then the Royal Aircraft Factory—produced an S.E. scout, which proved uncontrollable, and nearly killed Mr. de Havilland. Not long after Mr. de Havilland left the R.A.F. and joined the Aircraft Manufacturing Co., Ltd. founded by Mr. Holt Thomas.

The R.A.F.'s last product before the war was the B.E.2c, an inherently stable, or uncapsizable, machine, produced as the result of experiments in the air by Mr. E. T. Busk, who was unfortunately killed through the machine catching fire in the air, owing, as seems likely from later experiences, to a defect in the engine. This engine, the 100-h.p. R.A.F., was one designed by the R.A.F., and subsequent examples have been given to blowing off cylinders and breaking valves, either of which mishaps would be likely to cause fire. Over a thousand spare cylinders had to be sent to the R.F.C. on active service later in the war on this account. This engine being unobtainable in quantities, the B.E.2c's were ordered in hundreds with 70-h.p. and 80-h.p. Renault engines, with which it was utterly under-powered and dangerous to fly over enemy lines. When 100-h.p. R.A.F.'s were ready they were so unreliable as to be dangerous.

JUDGE, COMPETITOR, AND EXECUTIONER.

The R.A.F. staff have always acted as "expert advisers" to the Department of Military Aeronautics. Consequently British aircraft constructors have found themselves in the position of having only one customer—the Government—with their chief competitor acting as their judge. This is not apt to inspire trust or confidence in the Government's methods. It may be entirely wrong to attribute bias, but the position is unfortunate and events have increased instead of removing suspicion.

For examples one cannot do better than trace the method adopted in ordering machines for the R.F.C.

Despite the Avro beating both the B.E.2 and the B.E.8, Army orders for Avros were not given till after war broke out, and the Avro firm would have expired but for a few paltry Admiralty orders. Nevertheless, B.E.2's and B.E.8's were ordered in quantities from firms who had never previously built an aeroplane. When Avros were ordered they were altered to suit R.A.F. theories and their performance was ruined so that they could neither fly fast nor climb. When the firm begged for the loan of bigger engines their requests were ignored, and big Beardmore engines were given to firms who had never built aeroplanes at all, to put into the R.A.F.'s "R.E." type machines, which were known to be useless for active service.

When the British and Colonial Aeroplane Co., Ltd., produced the Bristol "bullet," the fastest machine in the

world at the time, none were ordered. Soon afterwards the R.A.F. tried to build the S.E.4 to beat it. The machine was designed on paper, and vast quantities of costly metal fittings were ordered, sufficient for a number of machines. The S.E.4 was a failure, and Bristols had to be ordered owing to the demands of active-service pilots.

The Bristol people also produced a very useful two-seater, but instead of encouraging the firm to develop it the War Office ordered the Bristol firm to make B.E.2s.

The Vickers Co. produced a very valuable "pusher" gun-carrier, and this was ordered in small numbers early in the war, but the bulk of the firm's orders were for B.E.2s and B.E.8s, both already obsolete at the time.

The Aircraft Mfg. Co., Ltd., produced Mr. de Havilland's first "pusher" gun-carrier, with a Renault engine. It put up a fine performance, but had not enough power for modern conditions. Nevertheless, the necessary big engines were kept for the R.A.F.'s own purposes, and in due course they produced to beat the de Havilland the F.E.2b, a safe version of the fatal F.E.2. But if Mr. de Havilland had had the big engines at the start there would have been no need for F.E.2bs. Then Mr. de Havilland produced his little single-seater, and it was promptly copied by the R.A.F.'s "F.E.8" type.

HOW POLITICS AFFECT DELIVERIES.

All through the same policy has been followed. When a "trade" machine beats the R.A.F.—as it eventually does—orders for that machine are hung up, delayed, or tangled in red tape till, some six months later, an R.A.F. machine beats it. Then the R.A.F. machine is ordered in quantities from contractors who are not aeroplane designers, and therefore not critical. The drawings sent out are always wrong, and by the time they have been got right months have passed.

This policy defeats its own objects, for, owing to bad drawings, the contractors have all been compelled to engage draughtsmen with aeroplane experience to make the R.A.F. drawings "join up." The result is that these draughtsmen infect with dislike of the R.A.F. the innocent engineering and motor firms who ought to regard the R.A.F. as their patrons and benefactors, and by pointing out the futility and ignorance of R.A.F. designers, these aircraft draughtsmen persuade those firms to build machines of their own design and not of the R.A.F.'s.

But, unfortunately for the R.F.C., even when the R.A.F. does produce a fairly useful machine there is so much delay in getting it built that it is already out of date when the first deliveries arrive, and the later deliveries are practically only fit for the scrap-heap before they are built.

In point of fact, machines are being built in England to-day, in execution of contracts, which should be burnt as they are delivered, being unfit for active service.

It is thus that one finds B.E.2s. being delivered long after Avros made them obsolete, F.E.2s. behind the Vickers, and S.E.s. behind Bristols and Sopwiths.

F.E.8s. are only now beginning to arrive, though de Havilland scouts have been on active service in quantities. And the improved R.E.s are still far behind the Martinsydes.

A GRUDGING IMPROVEMENT.

Of late pressure from active-service pilots has forced the R.A.F.'s friends in Whitehall and Albemarle Street to order from British constructors, hence the orders for de Havillands and Martinsydes. But even then things are done the wrong way, for instead of ordering these machines on a royalty basis from sub-contractors and getting them in quantities inside six weeks, the War Office waits till the R.A.F. produces something better—by which time the "trade" designer has got something better still. Then there is a wait of six months before the first R.A.F. designed machine comes through—by

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which time the "trade" firm is already delivering the type which has made the R.A.F. design obsolete.

Again, suppose the Army wants fighting machines, it insists on Martinsyde bomb-droppers being converted for the job. The Navy is sure to want bomb-droppers, and so it insists on Sopwith fighting machines being converted. It would be so simple to swop over and have the needed machines built, on royalty, by sub-contractors, only for the fact that so many sub-contractors are full of orders for obsolete R.A.F. types.

WHAT DOES THE MONEY BUY?

It was stated in Parliament recently that the R.A.F. employs over 3,000 men, and that Mr. O'Gorman—recently created Lieut.-Col. (temp.), T.F.—now draws £3,000 a year.

Why, then, does the R.A.F. exist? One can only assume that the huge shops erected before the war are being set up so as to create a Government monopoly of aeroplane construction.

It would be interesting to find out how much matériel of practical value is actually delivered to the R.F.C. each week, and find how far Mr. O'Gorman's own £60 per week would go towards purchasing the total amount in the open market, leaving out of the question the £9,000 per week paid in wages, which is almost all wasted on men who loaf round all day, merely pretending to work.

The useful output of the R.A.F. is a negligible quantity. Even as an experimental shop it appears to fail. Otherwise, why has the R.F.C. its own experimental works at Feltham?

It is now known that a Committee of Inspection was appointed to investigate the state of affairs at the R.A.F. This Committee was to consist thus: Sir Richard Bur-

bidge, of Harrods, a most capable business-man and a fine commercial organiser, but not a workshop-trained engineer; Sir Charles Parsons, of turbine fame, a great designer of machinery, but not a workshop organiser; and Sir something Donaldson (Robert, I think), of Woolwich Arsenal. The last named is said to be reorganising the Arsenal, in which case one imagines there is plenty for him to do. In fact, from what I learn of the state of affairs there, he will be well advised to begin again as soon as he has finished.

WHAT'S IN A NAME?

This Committee, therefore, does not suggest that any improvement is to be expected at the R.A.F. as the result of a polite visit, a friendly lunch with the superintendent, and a pleasant drive home through the spring-clad country.

One sees again, as in all other official Committees, the fatuity of choosing men for their names. The man with the best-known name is never the man who knows most—except on his one subject in which he has made that name. I would guarantee to find three Smiths, or three Browns, or three Joneses who would clean the R.A.F. out and make it not merely useful, but highly efficient, inside two months—it would take that long at least to clean the Augean stables. But no one except a man who has worked with his hands at the bench alongside the British workman could do it.

The only consolation one has about the appalling waste of money at the R.A.F. is that perhaps, after all, the R.A.F. staff have not done quite so much harm to the development of British aircraft as has been done by the Construction Department at the Admiralty, which draws very much less money in the aggregate.—C. G. G.

THE AIR MINISTRY.

It appears that Lord Northcliffe has made a serious strategic error in publishing what amounts to an attack on Lord Curzon, when the latter's name was mentioned by Mr. Asquith as conducting an inquiry into the state of the Flying Services.

Lord Northcliffe makes no suggestion that anyone else is better suited for the Air Minister's job. He cannot take the job himself; it would be fatal if he did. He cannot force Mr. Pemberton-Billing on the country as Air Minister—yet. In the first place the member for East Herts is far too valuable as a critic of whomever may be offered as a preliminary sacrifice in the new office, and he knows it. In the second place, the older Services, and the new Air Service itself, will not stand for Mr. Pemberton-Billing as Air Minister till he has sown his political wild oats and become "respectable" by living down his early political association with men of the stamp of Bottomley and Tillett—which was a tactical error of judgment—and by securing the "Times" and "Morning Post" as his official organs rather than the "Daily Mail."

Lord Sydenham is the right man for the Air Ministry, but the Cabinet cannot see it, or he does not want it, or he is too much of a soldier and gentleman and not enough of a politician to intrigue for the job, so one fears that he must be counted as out of the running.

Lord Montagu of Beaulieu would also be a good choice, for if keenness on his subject and honesty of purpose can make a Minister, he should make a very good one indeed. If he were appointed, however, we should lose a valuable and well-informed critic.

Part of a Minister's duty is to defend his Department, for no department ever moves except under the spur of criticism. Therefore one is still doubtful whether as a constructive and destructive critic Lord Montagu would not be of even greater value than as Minister, unless it were clearly understood that he would be as firm in this

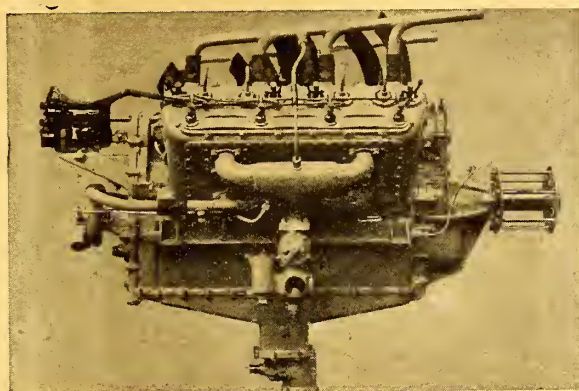
matter as in the matter of Lord Derby's Committee, and would only take office on the understanding that he would resign at once if the necessary reforms were not carried out immediately. Who, then, remains except Lord Curzon?

The noble lord, the ex-Viceroy of India, is credited with wanting to do everything himself. This quality may be either a virtue or a vice according to how it is used. It may become mere interference with the work of subordinates, who ought to be left to do their own jobs in their own way. Or it may mean that the Minister cannot be hoodwinked by understrappers who want to play their own game and use him merely as a tool. It remains to be seen which way Lord Curzon would use his undoubted ability and energy.

It is evident from Mr. Asquith's admission that Lord Curzon knows a great deal about the state of the Flying Services already, and if he continued to draw his information from the same sources he could not go far wrong. The danger is that, as an official he might feel in duty bound to adopt strictly official views and to back up official mistakes. Such is the attitude of the ordinary mandarin, and one hopes Lord Curzon is too clever a man for such a policy.

No other appointments in the proposed Air Ministry are suggested by any official utterances, but unofficial rumour emanating from official quarters has it that if and when a Board of Construction is formed under the new Ministry it might include Mr. Mervyn O'Gorman, C.B. (at present Lieut.-Col. (temp.), T.F.), in collaboration with General Henderson or General McInnes, or both, as representing the present War Office control, and Engineer-Commander Randall, R.N., on behalf of the present Admiralty group, with perhaps Mr. Harris Booth and sundry officials of the N.P.L. and R.A.F. as assistants. Such a body in absolute control of aircraft output would, at any rate, be very interesting.—C. G. G.

8
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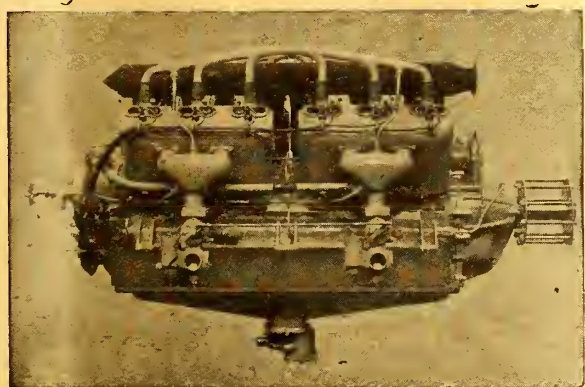
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AIRCRAFT IN THE HOUSE.

ZEPPELINS (TEXTILE MATERIAL).

On April 19th **Captain Bennett-Goldney** asked the Secretary of State for Foreign Affairs whether he has official information to the effect that the warp and the woof of all or nearly all the textile material used by Germany in the manufacture of all or nearly all the Zeppelins since the outbreak of war was made in our own factories; if so, when information of this trade first reached the British authorities; and if effective steps have been taken to put a stop to it?

Lord R. Cecil: I have no information to this effect.

Captain Bennett-Goldney: Has the right hon. Gentleman got any unofficial information.

Lord R. Cecil: No, I have not, but I should be very glad to receive any if my hon. Friend has got some.

SOUTH-EAST COAST DEFENCES.

Mr. Joynson-Hicks asked the Under-Secretary of State for War whether he has received an urgent request from a town on the South-East Coast for two aeroplanes for defence against raiders; whether the mayor of such town has offered to pay for such machines; and what is the reason why they cannot be sent?

Mr. Tennant: The Mayor of Ramsgate has asked that two aeroplanes should be allowed for the protection of the town. The provision of such aeroplanes does not depend upon the willingness of the mayor to pay for either the cost of the machines or the cost of providing the personnel. It depends upon considerations which it is obviously undesirable to refer to in the House or in any public place. But the hon. Gentleman can rest assured that every possible step is being taken to protect the South-East Coast.

ANTI-AIRCRAFT GUN SHOTS.

Mr. Billing asked the Under-Secretary of State for War whether, in view of the difficulty when anti-aircraft guns are firing simultaneously at an object of the individual gunners spotting their shots, he will consider the advisability of the introduction of

distinctive coloured bursts, and thus enable each gun to estimate and correct the range?

Mr. Tennant: The suggestion is one that has been frequently made, and has been the subject of numerous experiments in our own and in foreign armies. It has, however, been found to be impracticable, and, so far as known, has never been adopted in any country.

[It may be impracticable at night, but the Germans appear to have used the system at times in daylight.]

PILOTS KILLED.

Mr. Billing asked the Under-Secretary of State for War whether he can inform the House of the number of air pilots killed or seriously injured during the recent Zeppelin raids; whether he has satisfied himself that these casualties were not due to the employment of machines unsuitable for night flying and to the effects of inadequately lighted landing places; and can he say why losses in the air are not as fully and promptly recorded as losses in the field?

Mr. Tennant: Since the 1st January four pilots have been killed or have died of injuries and one was badly injured and has since recovered. The aeroplanes used by these officers were all eminently suited for night flying, and in no cases were the accidents due to inadequately lighted landing places. The same procedure is followed in reporting casualties at home as in publishing those which occur abroad.

[The last statement is untrue. The deaths of R.F.C. officers killed on duty at home do not appear in the casualty lists.]

Mr. Billing: Does the right hon. Gentleman wish me to supply him with further evidence that these accidents have happened owing to unsuitably lighted aerodromes?

Mr. Tennant: No, Sir, I do not wish the hon. Gentleman to do anything of the kind. My information is that they have

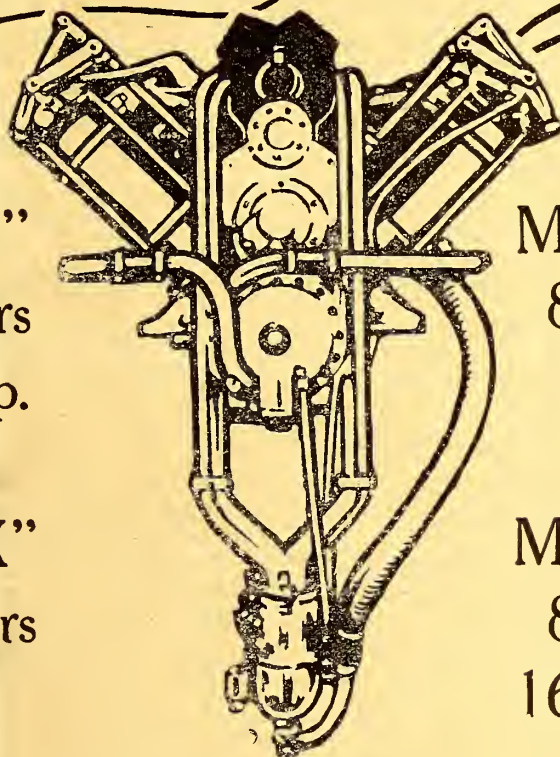


The old Zeppelin "Hansa," now being used as a school machine at Johannisthal. The generally worn appearance of the envelope is noticeable, especially where oil from the propeller gears has apparently perforated the outer casing.



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6 cylinders
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ERNEST B. H. LANDER, 1915.

occurred through other causes than inadequately lighted landing places.

[Mr. Tennant is absolutely misinformed.]

Mr. Fenwick: Have any complaints reached the right hon. Gentleman from residents in the neighbourhood of these lighted stations complaining that such lights act as a guide to the enemy when flying over their neighbourhood, and that only recently very grave disturbance has been caused by the use of these lights; and whether he can see his way to order that they should be removed from places where there is considerable residential property?

Mr. Tennant: My right hon. Friend was good enough to bring to me complaints in the sense he mentions, but I would point out to him that landing places are important, and room must be found for them somewhere. Of course, I agree with him that it is desirable that they should be as remote as possible from thickly populated parts of the country, and, so far as I am aware, that is so. With regard to the special case my right hon. Friend has in view, I will have further inquiry made.

[There is no reason whatever why flares should be kept blazing all night to act as a target for bombs.]

Mr. Fenwick: Will my right hon. Friend undertake, when a Zeppelin raid is expected, to notify the area in order that the people may clear away from their homes until the danger passes?

Mr. Tennant: That, of course, is a totally different question, but it is invariably done.

[It is not done—in various instances.]

ENEMY RAIDS.

Mr. Hogge asked the Prime Minister whether the Government are prepared to consider any representations from owners of undefended property damaged in recent air raids in Scotland, with a view to some compensation?

The Prime Minister: No claim for compensation can be considered from property owners who have omitted to insure under the Government scheme for aircraft and bombardment risks.

Mr. Hogge: Can my right hon. Friend say whether the only defence for those people is the insurance scheme?

COMMITTEE OF INQUIRY.

Mr. Billing asked the Prime Minister whether he is aware that the charges of inefficiency and intrigue and also the allegations concerning the deaths, losses, and injuries among our flying men made by the member for East Herts applied equally to the Royal Naval Air Service and the Royal Flying Corps; whether he will now give an assurance that the terms of reference to the Committee the Government have promised to appoint will be so framed as to include both branches of the Air Service; and will the Committee be given such powers as to enable them to make effective recommendations?

The Prime Minister: I will consider this suggestion with the First Lord of the Admiralty.

INVESTIGATION BY LORD CURZON.

Mr. Billing asked the Prime Minister (1) whether, in view of recent statements, he can say if the Government have any approximate figures as to the number of Zeppelins and other enemy aircraft built or building; whether the localities of the Zeppelin and enemy aircraft factories and their principal bases are known; whether any considered offensive policy for the defence of the country by attacking these factories and bases has yet been determined upon.

(2) Whether the public speeches of Lord Montagu have been brought to his notice; whether before the House adjourns for the Easter Recess he can make any statement which will reassure the public that the resignations of Lord Derby and Lord Montagu have been taken by the Government as exposing the futility of the Joint Air War Committee and the necessity for the immediate appointment of a body which shall have real executive power;

And (3) whether the resignations of the civilian members of the Joint Air War Committee have resulted in the cessation of the meetings of the Committee; and, if so, can he give any reason why the expert representatives of the two Services should not continue their deliberations?

Mr. Bennett-Goldney asked the Prime Minister (1) whether his attention had been called, either by Lord Derby or Lord Montagu, to the elements which have done so much to mar the efficiency not only of the Committee known as the Air Committee but of the Air Service itself; whether he is aware that friction also still exists between the two Services themselves and between officers in high positions in the same Service; if he will take steps to put a stop to these quarrels;

(2) If he can suggest any idea of the date when he will give the promised day for the discussion on our Air Services; whether he can hold out any hope that the Government intends so to co-ordinate the present system of control that, while the Navy and the Army shall each retain the necessary power over the actions of their own units, there shall be one single responsible chief of the Air Services, presided over by an Advisory committee consisting of men with unquestioned knowledge and experience in actual flying as now practised as well as in aircraft construction and organisation;

And (3) if he can inform the House whether the Committee from which Lord Derby and Lord Montagu resigned will be re-

constituted with the fuller powers recommended by these Noble Lords, and in such a manner that its chairman or president shall become the Minister responsible to this House for the efficient administration and supply of our Air Services?

The Prime Minister: My Noble Friend Lord Curzon, at my request, has carefully examined the whole of the aircraft situation, and as a result of that examination he has presented a report which, without disclosing its precise contents, I may say recommends large changes in organisation. It is under the consideration of the Cabinet, and I cannot say at this moment the final decision at which we shall arrive.

[One suggests that this admission alone justifies the whole of the agitation which has been going on of late.]

ROYAL AIRCRAFT FACTORY.

Mr. Bennett-Goldney asked the Under-Secretary of State for War whether his attention has been called to the dissatisfaction existing amongst experienced and practical flying men with the methods still dominating the Royal Aircraft Factory; if he is aware that, while it is admitted that the O'Gorman regime produced in pre-war days an excellent flying machine, the machines which have been lately favoured by the Royal Aircraft Factory are by no means the best obtainable for war purposes; and if he will now place this factory and the whole question of aircraft supply under the Ministry of Munitions?

Mr. Tennant: The Royal Aircraft Factory is not responsible for the selection of the types of aeroplanes to be used by the Royal Flying Corps. I do not, therefore, quite understand the first two parts of this question. As the statements made in the first two parts of the question are not, in my opinion, correct, the last part of the question does not, I think, arise.

[A perfect example of Mr. Tennant's methods. The fact is that the selection of machines is made not by the R.A.F. officials in person, but by Staff officers who have hitherto invariably accepted the opinions of R.A.F. officials. The difference is a very narrow one, but it is sufficient for political purposes.]

Mr. Billing asked the Prime Minister whether, in view of the dissatisfaction and confusion caused by the growing practice of some Ministers in answering collectively questions addressed to them by different Members, he will, as head of the Government, give instructions that henceforward each question shall receive a separate answer?

The Prime Minister: Oh, no, certainly not.

THE DEBATE ON THE ADJOURNMENT.

Sir Henry Dalziel: Before the House adjourns I desire to register my protest against the action of the Government in again postponing their statement with regard to the Air Service. . . . A week or two ago we were promised a statement as to the policy of the Government before the House adjourned for Easter, and we are to-night to adjourn for Easter, and we have not had any attempt whatever to keep that pledge that was made on behalf of the Government, and we have no statement on air policy. We have only had the answer to my hon. Friend the Member for East Herts (Mr. Billing) to the effect that one member of the Cabinet has been considering the matter, and preparing a report which he intended to present to the members of the Cabinet, and that in due course they would give it their consideration.

I think it is time we complained of the utter self-complacency of the Government with regard to things generally, and more particularly as to their neglect of the Air Service. We are nearly two years at war, and even at this moment we have no brain working for the benefit of the Air Service. We were told many weeks ago, when Lord Derby and Lord Montagu were added to the Committee, that at last we had got men who were going to settle this question, and the Government asked for the confidence of the people, because they were going to give it their mature consideration. But Lord Derby and Lord Montagu have given up their work in despair. They recognised they had no power, and as business men they refused any longer to assist in the farce that was being played to pretend to the people that at last they were going to deal with the Air Service.

I complain and register my protest that once again this question is going to be postponed. It shows to me that the Government at this moment have not yet realised the importance of the air question. They have drifted on without any policy. They have relied upon their dummy guns to satisfy the anxiety of the people, and moved them about from town to town with guards around them, until the people themselves found out the fraud that was being perpetrated, and in one case I know of they themselves besieged the guns and the guard that was supposed to be defending them.

That is the policy of the Government, and who can blame us if we refuse to take any responsibility for such an extraordinary state of affairs? Why, Sir, the neglect of the Air Service is the neglect of almost every Department. They have no foresight, and they have taken no precautions at all.

We have not, despite what they tell us, supremacy in the air. Ask the officers back from the front whether it is true that we have control of the air or not. See what happens in this country with regard to raids. Does anyone believe we have any real aircraft defence in this country? Nothing of the kind. Nobody believes it, because it is not there, and yet this reorganisation was



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to be announced before we adjourned for Easter, and it has not yet even been considered by the Cabinet.

Well, I think the Government are playing with this question. I think they have not really faced it up to the present time, and how the public can have confidence in them after the manner in which they have dealt with a vital question of this kind, I entirely fail to appreciate. I therefore again register my protest against the breach of faith—as it is—in regard to the statement of policy, and I shall raise the question again as soon as the House meets, or if my hon. Friend the hon. Member for East Herts raises it I shall certainly give him my support.

Mr. Billing: While I thoroughly appreciate the words which the right hon. Gentleman the Member for Kirkcaldy Burghs (Sir Henry Dalziel) used just now in connection with the attitude of the Admiralty and the Government towards the Air Services, I would rather like to allude to the Prime Minister's admission, in answer to my question this afternoon, that the whole organisation of the Air Service is wrong and rotten and needs drastic reform. I think that is almost what he admitted.

He told us that he had requested Lord Curzon to inquire into the position of the Air Services—a sort of inspector—that he had done this, and that his report was so intensely unsatisfactory that drastic reforms were necessary. I think I can assume that I have not come to this House in vain. First of all, it more or less justifies my leaving the Service during the War. I now propose to leave this matter until Lord Curzon's Report has had the opportunity of sinking in.

During the next week, if it does not sink in, I propose to raise the question again, and in even a more critical sense; but it is only reasonable that the Government should be given a few days before being asked to make their announcement. Unless some definite and satisfactory announcement is made before the end of next week, I propose to raise this question, and I shall ask all hon. Members who put the defence of this country in that position of importance which I am quite sure it demands to assist me.

In the meantime, I would crave the leniency of this House to make something in the nature of a personal explanation.

In the first instance, I noticed last week that the posters of our City were covered, I regret to say, with my name. Some of them stated it one way and some the other. Possibly I might read a letter which my solicitors wrote to the Admiralty and which will explain itself:

"Sir,—The attention of our client, Mr. Noel Pemberton-Billing, M.P., has been called to a statement, alleged to have been made by Mr. Edgar Charles W. Middleton to three officers of the Royal Naval Air Service, that he 'came down to Dover to do a bit of spying for Mr. Pemberton-Billing, M.P.' If any such statement was made, we are instructed by Mr. Pemberton-Billing to say that there is not one word of truth therein, or in the suggestion that Mr. Middleton was authorised or in any way requested by our client to go to Dover or elsewhere 'to do a bit of spying' or obtain information for him or on his behalf. We may say that on the instructions of Mr. Pemberton-Billing we have to-day issued a writ against the proprietors of the 'Globe' newspaper for damage for libel contained in a placard issued yesterday containing the words 'Spying for Pemberton-Billing. Airman arrested.'"

With regard to some other papers who have seen fit to take up some other people's cudgels, I would like to give a brief personal explanation with respect to charges which appeared in a London newspaper affecting my personal honour. For the past three days an attempt has been made, by inaccuracy and innuendo, to discredit my character and to hold me up before the public as a man unworthy of credence, and as a man who claims an authority which he is not entitled to exercise. I should have passed over all these allegations as mere personal abuse except for the charges which appeared to-day.

I may say that since I first stood as a political candidate I have become used to this sort of thing. I have come to realise that any man who dares to attempt independently to enter public life, in answer to what he believes to be a call to duty and with a desire to do some real public service, is immediately met by the attack of inspired newspapers and by the allegations of interested parties. In my view, I stand for something even greater than my personal reputation, but my reputation is essential to my work, and as long as I retain the confidence of my constituents and remain a Member of this House I will not allow my character to be besmirched without standing up in this House and answering my traducers.

I do not object to hard hitting. I hit hard myself. But I protest that it is un-English to attempt to injure a man by insulting, domestic innuendoes which are as false as they are cruel. If these attacks had been confined to attempts to discredit me merely because I had lived a life of labour instead of a life of leisure, I need hardly say that I should not have answered them. But to-day there appears in this newspaper a direct challenge to my honour, a rehash of the scurrilous allegations which were circulated throughout my constituency during my recent election.

AN ASTOUNDING REVELATION.

During my contest in East Herts I was assailed by my opponents with a bitterness and a wealth of scandalous invention hardly to be believed. I was told that "it was all part of the game," whatever that game may be, and having defeated those who played it, I felt that I could afford to ignore the scandal and the abuse. At that time a letter passed between a prominent Minister of the Crown and a leading party organiser, the concluding sentence of which was as follows:—

"I am sorry to trouble you so much about Pemberton-Billing, but he has undoubtedly captured the imagination of the public. The seat is in danger, and unless we can discredit him I fear that he will be returned for East Herts."

I am glad to say that the assistance which the right hon. Gentleman was able to give was not successful. [HON. MEMBERS: "Name!"] Is it fitting that I should use it? The writer of this letter was Sir John Boraston, and the receiver of the letter was Mr. Arthur James Balfour.

With reference to the night-flying machine which I designed, I challenge the writer of this article to produce the evidence with which he says the Admiralty supplied him, and if he can produce such a document then I challenge the Admiralty to prove it.

I am accused of stating that the Admiralty took twelve months to build this machine. I never said—I never could have said—anything of the kind, for the simple reason that the machine was built out of my own pocket at a cost of about £6,000. It is not until the last few weeks that the Admiralty have at last recognised the possibilities of this machine for fighting Zeppelins by night, and have eventually decided to build to my design.

With regard to Pemberton-Billing, Limited, prior to the outbreak of war I had been for many years endeavouring to foster aviation in this country at the cost of thousands of pounds. At the outbreak of war I possessed what would then have been considered quite a large factory for the production of seaplanes and aeroplanes, but appreciating the scarcity of pilots I thought that I could serve my country better as a pilot than as a profit-making constructor. I therefore volunteered as a pilot and joined the Royal Naval Air Service, and closed the factory.

Later the Admiralty decided that my factory was of such value that it was in the interests of the Service that its facilities should be employed. It was therefore opened up and machines to my design were ordered. On deciding to enter this House I requested the Admiralty to take over the whole business at their valuation, or, failing that, to work it on a 10 per cent. basis for the duration of the War, so that I need have no pecuniary interest, directly or indirectly, in any aerial undertakings in this country so long as I remain a Member of this House. Negotiations are now in progress, and I hope to be able to make a statement at an early date.

Perhaps the most serious of these newspaper accusations affect members of the Government. I have asserted, and I repeat, that the hon. Member for East Birmingham (Mr. Steel-Maitland) stated to me in his own house that if I stood as an independent candidate the Government would have nothing to do with me, but if I was prepared to wait I should in due course be found a safe seat.

I may state, I trust in the hearing of the hon. Gentleman, that so far as the name of the Colonial Secretary (Mr. Bonar Law) has been brought into this, I repeat that in a conversation which took place in the room of the Chief Liberal Whip in this House and in his presence I declared my intention to enter this House in any event, and if I could not get in in any other way to fight the joint party machine as an independent candidate on the Air Service. I trust that both right hon. Gentlemen are here, as I have given them private notice of my intention to make this statement.

There is only one other point, and it is in regard to the allegation made against my Service record. Throughout the constituency that I fought, and throughout Wimbledon during the last few days, hired speakers of the party machine have stood up in the streets and halls and have said: "This man was flung out of the Air Service. He is a waster. He is no good in the House, or out of it. He has never flown an aeroplane. He has never done anything. He is a liar."

I say that, under the circumstances, I have been absolutely driven to take the step I now propose to take, and that is to read to the House a letter which I am glad to say I have now eventually persuaded my late commander-in-chief to give me permission to read to clear my honour, a letter which he wrote to me on leaving the Service. The letter reads as follows:

"Air Department,

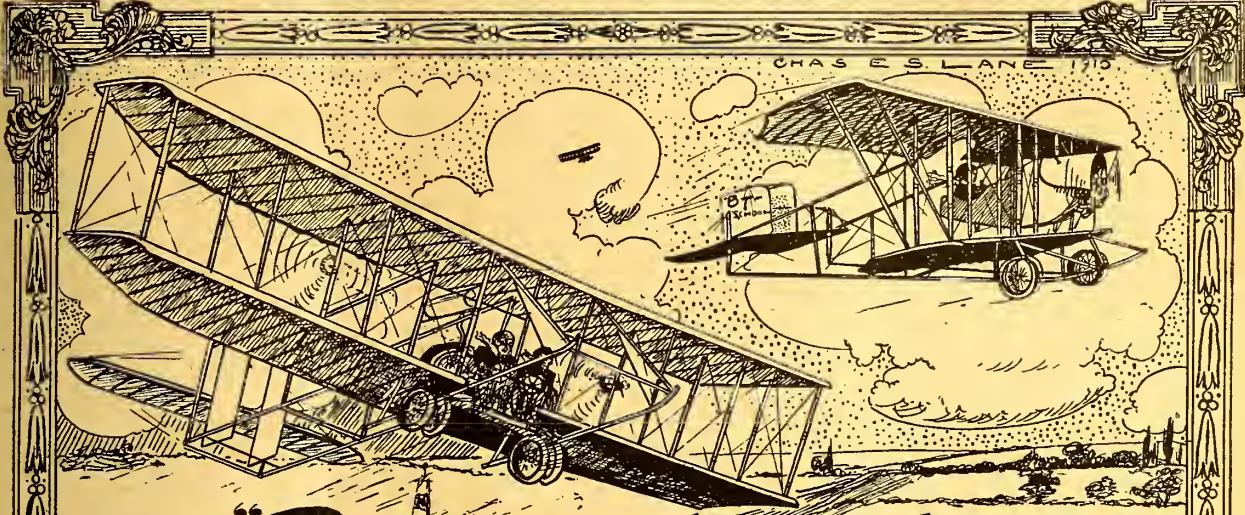
Admiralty,

December 23rd, 1915.

Dear Pemberton-Billing, I am sorry indeed to receive your application to retire from the Naval Air Service, as I always considered you as one of the 'star turns' for any air raid that might be required to be organised.

Had another attack on the Zeppelin shed on Lake Constance been required, you were the man to undertake the job.

In confidence, I may tell you that Mr. Churchill and Lord



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Fisher were very pleased with the way you organised the Lake Constance raid, and instructed me to note your name for advancement.

I believe the French Government were also pleased with the bombs dropped on the Zeppelin factory.

If any question of your promotion arises, or any honour is suggested for your war services, I will do my best to press your claims on the authorities.

With sincere regret on your decision to leave the Air Service, and with all good wishes for the future,

I remain, yours very sincerely, **MURRAY F. SUTER.**

The Under-Secretary of State for the Colonies (Mr. Steel-Maitland): I have to thank the hon. Member for his courtesy in sending me word that he proposed to refer to me in the course of his statement. The hon. Member stated that in a conversation with me at my house I undertook if he waited to find him a safe and comfortable seat. The hon. Member met me at my house. He informed me on that occasion that he did not wish to attack the Admiralty or the Air Service, but I absolutely deny categorically that I ever either undertook or promised to find or gave him any expectation whatever of my finding him a safe and comfortable seat if he did not attack the Government. I am afraid that I cannot put it more plainly than I have done.

Perhaps in this connection I ought to read to the House the passage from the speech which, I think, was the origin of this particular point. I had a copy of the speech sent across to me so as to make quite sure of the reference. The speech was delivered at Waltham Cross on Tuesday, February 29th, and it contained these words:

"I think I am right in saying that those people who select candidates for the House of Commons—and should I be too

hard in saying foist them on constituents and constituencies, whether they like them or not."

This may appear to be some reflection on Members of this House who have gone through that operation:

"Simply informing people that there is the party machine behind—'you will kindly give him your vote,' and the 'kindly' has a ring in it more compelling than polite. I must apologise for alluding to this subject, but I was considered, according to Mr. Steel-Maitland, quite a promising young person for political life, and I was told that if I would agree to refrain—this was quite unofficial, I assure you no politician would be so foolish as to commit himself—from any active attack on the powers that are, I should be found in due course a safe and comfortable seat."

That is all I need quote from the speech. I am sure the House will agree I cannot deal with that particular point more directly than I have done.

With regard to the reference to the Secretary for the Colonies, I can only say this. The right hon. Gentleman absolutely adheres to his denial of the utterances attributed to him in the room of the Chief Liberal Whip. I think the hon. Member meant the Chief Unionist Whip. It must have been a slip of the tongue on his part to have said it was the office of the Chief Liberal Whip.

Mr. Billing: Lord Edmund Talbot.

Mr. Steel-Maitland: Yes, the Chief Unionist Whip. My right hon. Friend has authorised me to state that before making his denial he refreshed his memory by consulting the Chief Unionist Whip as to what exactly occurred. I do not wish to detain the House further. That is all I have to say on the point.

THE ALBERT HALL MEETING.

The meeting of the signatories to the Air Convention, organised by Mr. Noël Pemberton-Billing, M.P., is to take place on April 29th, at 3 p.m., at the Albert Hall. It is open to the general public, and is not confined to those who have signed the Convention, though some hundreds of thousands have already signed.

The date has been altered from the evening of April 27th so as to ensure everyone being able to get home in safety after the meeting, for by then the nights will be dark, and it would be a terrible anti-climax if the audience at a "Big Air Service" Meeting was unable to get home because all the London railways were shut down because a Zeppelin was rumoured to be looking as if it might drop bombs on Hull. Knowing Governmental ways, Mr. Pemberton-Billing has, therefore, decided to hold the meeting in broad daylight.

The chair will be taken by Mr. Arnold White, and a number of notable persons will be present on the platform.

All seats are reserved at the uniform price of 2s. 6d. each, and they may be obtained from the Air Convention Office, 4, Elm Court, Temple, E.C.

THE QUEEN'S HALL MEETING.

The meeting to advocate a more vigorous air policy, and in support of the creation of an Aerial Board of Control, which will be held at the Queen's Hall, Langham Place, on April 28th, under the auspices of the Navy League, will be a very important affair.

The chair will be taken by Mr. Robert Yerburgh, M.P., President of the Navy League, at 2.30 p.m., and Lord Montagu of Beaulieu will speak on the practical organisation of aircraft as an arm of national defence.

The chairman will be supported on the platform by the High Commissioner for New Zealand, the Earl of Meath, Lord Blyth, Lord Leith of Fyvie, Sir Thomas Dewar, Colonel Walter Faber, M.P., Colonel J. M. Gretton, M.P., Sir Charles Nicholson, M.P., Mr. A. St. G. Hamersley, M.P., Mr. Basil Peto, M.P., Mr. W. Joynson-Hicks, M.P., Mr. Wilfred Ashley, M.P., Mr. George Faber, M.P., Mr. Ian Malcolm, M.P., Mr. Rupert Gwynne, M.P., the Lord Mayor of Bradford, and the Mayors of Battersea, Deptford, Greenwich, Kensington, Wandsworth, and Woolwich. There is a big demand for tickets, not merely from London, but from all parts of the country. Tickets are free and will be issued in the order in which the applications are received. Applications must be addressed to the General Secretary of the Navy League, 11, Victoria Street, S.W.

THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS.

As the Censor has apparently seen fit to permit the publication in the public Press of the names of firms which have joined the S.B.A.C., it seems well to give the authentic list of companies and firms who have formally notified their intention of joining the Society, together with the name of the individual representing each firm on the council of the Society:—

Name of Company or Firm.	Representative on First Council.
Aircraft Manufacturing Co., Ltd. ...	Mr. G. Holt Thomas
Airships, Ltd.	Mr. G. Holt Thomas
The Austin Motor Co. (1914), Ltd. .	Mr. Herbert Austin
William Beardmore and Co., Ltd. ..	Mr. C. G. Gourlay

The Blackburn Aeroplane and Motor Co., Ltd.	Mr. Robert Blackburn
Boulton and Paul, Ltd.	Mr. G. E. ffiske
The Brush Electrical Engineering Co., Ltd.	Mr. B. Broadhurst
The British and Colonial Aeroplane Co., Ltd.	Mr. H. White Smith
The Coventry Ordnance Works, Ltd.	Lt.-Col. Mansell
The Daimler Co., Ltd.	Mr. E. M. C. Instone
Darracq Motor Engineering Co., Ltd.	Mr. Robert Crossley
William Denny and Brothers	Sir Archibald Denny, Bart.
The Dudbridge Iron Works, Ltd. ...	Mr. Francis J. Platt
The Grahame-White Aviation Co., Ltd.	Mr. F. H. Payne
Hewlett and Blondeau, Ltd.	Mr. G. Blondeau
Jouques Aviation Works	Mr. L. A. Jouques
Mann and Grimmer	Mr. Grimmer
Martinsyde, Ltd.	Mr. Hamilton Fulton
Mann, Egerton and Co., Ltd.	Mr. G. N. C. Mann
D. Napier and Son, Ltd., ...	Mr. H. T. Vane
Handley Page, Ltd.	Mr. F. Handley Page
Phoenix Dynamo Manufacturing Co., Ltd.	Mr. P. J. Pybus
Parnall and Sons	Mr. George G. Parnall
A. V. Roe and Co., Ltd.	Mr. H. V. Roe
Robey and Co., Ltd.	Mr. Ashley P. Pope
Ruston, Proctor and Co., Ltd.	Mr. F. H. Livens
The Standard Motor Co., Ltd.	Mr. R. W. Maudslay
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From this list it is easy to see that the Society carries the weight of all the important firms concerned solely with aircraft construction, and that it has, in addition, the backing of several big armament and engineering firms of unimpeachable respectability. Those gentlemen who first conceived the idea of forming the Society are to be highly congratulated on their good work, and any firm which has not yet joined is strongly advised to do so.

THE COURT CIRCULAR.

BUCKINGHAM PALACE, April 19th.

The King invested the following officer with the Military Cross:—

Sec. Lieut. FRANK HUDSON, The Buffs, East Kent Regiment and R.F.C.

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From the "London Gazette," April 18th, 1916.

ADMIRALTY, April 14th.

ROYAL NAVAL AIR SERVICE.—Flight-Commanders to be Squadron Commanders.—H. A. Williamson, W. Briggs. April 14th.

WAR OFFICE, April 18th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Following appointments are made:—Flight Commander.—Lieut. A. Graves, Dorset Fort. Engrs., R.E., T.F., from a Flying Officer, and to be temp. Capt. while so employed. April 3rd.

Flying Officers (Observers).—Capt. J. A. Denistoun, 8th Can. Inf. Bn. (90th Rifles), Temp. Lieut. R. S. McClintock, R.A., T.F., Temp. Lieut. J. T. Milne, Oxford and Bucks L.I., and to be transferred to Gen. List, Lieut. S. R. Stammers, Motor Machine Gun Service, and to be transferred to Gen. List, Temp. Sec. Lieut. G. R. Moser, A. and S. Highlanders. April 4th.

MEMORANDUM.—Pte. A. T. M. Grove, from 61st Can. Inf. Bn., to be temp. Sec. Lieut., for duty with R.F.C. April 15th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—To be Sec. Lieuts. (on prob.): R. L. Brancker. March 27th. N. Kemsley, J. M. Drysdale, W. Roche-Kelly, J. T. Hanning, A. G. Pinkney, C. H. Vincent, C. A. R. Shum, H. F. Chapman, G. R. Travis, G. J. Harter, W. Fraser, C. E. Finlay, J. A. Cowling, A. M. Pearson, C. W. Carleton, H. R. Harker, H. R. Lumley, L. A. Tapper, G. G. Callender, C. S. Hollinghurst, J. N. Holtom, A. O. K. Wright, W. N. Spragg, P. W. Snell, K. L. Caldwell, W. K. Trollope, M. J. Fenwick, J. D. Stodart, N. G. Caridia, N. Comper, R. P. Attwood, E. M. Wright, E. B. W. Bartlett, I. B. Hart-Davies, W. E. L. Seward. April 15th.

* * *

From the "London Gazette," April 19th, 1916.

WAR OFFICE, April 19th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Asst. Equipment Officers.—April 13th, 1916: Sec. Lieuts. Spec. Res.—T. W. Tattersall, A. Ward.

* * *

From the "London Gazette" Supplement, April 20th, 1916.

WAR OFFICE, April 20th.

REGULAR FORCES.—MEMORANDA.—The undermentioned, from R.F.C., to be temp. Sec. Lieuts., for duty with the Mil. Wing of that Corps: First Class Air Mech. Raymond John Everest, March 26th, 1916. April 6th, 1916: Flight Sergt. Frank Nuttall, Sec. Class Air Mech. Alfred Jasper Oscar Spiers.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieuts. (on prob.) are confirmed in their rank: Archibald Ward, Tom Whitaker Tattersall.

NAVAL.

The following appointments were notified at the Admiralty on April 19th:—

ROYAL NAVAL AIR SERVICE.—Temp. Sub-Lieut., R.N.V.R., B. O. Warren promoted to the rank of temp. lieut., with seniority April 17th.

Late Private (3rd Batt. Cameron Highlanders) A. N. Pennel and Mr. G. L. H. Douglas-Lane granted temp. commissions as sub-lieuts., R.N.V.R., and appointed to the "President," additional, for R.N.A.S., both to date April 17th.

Chief Petty Officer, sec. grade, J. Evason promoted to the rank of warrant officer, sec. grade, with seniority April 17th.

* * *

The following appointments were notified at the Admiralty on April 20th:—

ROYAL NAVAL AIR SERVICE.—Messrs. L. M. Bailey and I. J. Springfield entered as proby. flight sub-lieuts., for temp. service, with seniority April 19th.

* * *

The following appointment was notified on April 24th:—

ROYAL NAVAL AIR SERVICE.—Lieut., R.N.V.R. (temp.) K. Secretan, to "President," additional, for R.N.A.S. May 24th.

* * *

The following appeared in the Casualty List on April 19th:—

WOUNDED (under date April 16th).—Flight Sub-Lieut. Robert Souray, R.N.

* * *

The Secretary of the Admiralty announced the following casualties on April 22nd:—

KILLED, April 21st.—Saw, Flight Sub-Lieut. Arthur C., R.N. Hocking, Probationary Flight Sub-Lieut. William, R.N.

* * *

The Secretary of the Admiralty announced the following casualties on April 24th:—

SEVERELY INJURED.—April 20th.—Douglas, Flight Sub-Lieut. Russell, R.N.

SEVERELY INJURED.—April 23rd.—Marvin, Flight Sub-Lieut. John D., R.N.

SLIGHTLY INJURED.—April 22nd.—Marlowe, Flight Sub-Lieut. Augustine F., R.N.

SLIGHTLY INJURED.—April 23rd.—Galpin, Flight Sub-Lieut. Christopher J., R.N.

* * *

The marriage arranged between Flight Lieut. E. de Courcy Hallifax, R.N., and Miss Edith Southey will take place quietly at All Saints' Church, Compton, Hants, on April 29th, at 2.30 p.m. o'clock in the afternoon. There will be no reception, but all friends will be welcome at the church.

MILITARY.

A War Office communiqué of April 20th concerning operations in Mesopotamia says:—

Aeroplane reconnaissance after the enemy's counter-attack on the night of April 17th-18th discloses the fact that a large number of Turkish ambulances were busy all day removing their casualties.

* * *

G.H.Q. communiqué of April 24th says:—

A hostile aeroplane was brought down by anti-aircraft gunfire near Ploegsteert. Pilot and observer killed.

One of our machines is missing.

* * *

The Secretary of the War Office made the following announcement on April 24th:—

The General Officer Commanding-in-Chief in Egypt reports that on April 23rd there was fighting in the Katia district.

Aerial reconnaissance indicated that hostile parties, strength from 200 to 500, had been assembling in the desert, and were in the neighbourhood of Duweidar (15 miles from the Canal), and a strong attack by about 500 of the enemy was made at 5 a.m. on the post held by us at that place.

The enemy was harassed during his retreat by a column of Australian troops acting in concert with aeroplanes, and suffered heavy casualties both from the fire of the troops and from bombs and machine-gun fire from the aeroplanes.

* * *

The Secretary of the War Office made the following announcement on April 24th:—

At 11.45 a.m. a hostile aeroplane appeared over Dover from the east and circled over the town at a height estimated to be 6,000 feet. Anti-aircraft guns at once came into action.

The hostile machine was driven off. No bombs were dropped.

* * *

The Secretary for War made the following announcement at 2 a.m., April 25th:—

Three Zeppelins are reported to have come in from seawards over the Eastern Counties last night.

Two crossed the coast of Norfolk shortly before 10.30 and another followed at about 11 o'clock.

A few incendiary bombs have been dropped up to the time of the issue of this communiqué.

* * *

The Casualty List issued on April 19th contains the following:—

PREVIOUSLY REPORTED MISSING, NOW REPORTED WOUNDED AND PRISONER OF WAR.—Sec. Lieut. L. R. Heywood, R.E. and R.F.C.

* * *

The following appeared in the Casualty List issued on April 20th:—

WOUNDED.—Sec. Lieut. F. G. Russell, R.F.A., attd. R.F.C.

* * *

The following appeared in the Casualty List issued on April 22nd:—

WOUNDED.—Cole-Hamilton, Lieut. C. W. E., Royal Scots and R.F.C.; Donaldson, Sec. Lieut. E. G. E., R.F.A., attd. R.F.C.

* * *

The following appeared in the Casualty List on April 24th, undated:—

OFFICIALLY REPORTED MISSING AND UNOFFICIALLY REPORTED KILLED.—Earle, Sec. Lieut. W. S., R.F.C.

OFFICIALLY REPORTED MISSING AND UNOFFICIALLY REPORTED WOUNDED AND PRISONER.—Selby, Sec. Lieut. C. W. P., R. West Kent Regt., attd. R.F.C.

* * *

On April 24th a fatal aeroplane accident occurred near Bournemouth. Lieut. E. W. W. Rebbeck, R.F.C., left Beaulieu in a B.E. biplane and flew to the Bournemouth aerodrome. After a short halt he re-started, but hardly got clear of the aerodrome before the machine stalled and side-slipped while turning. The machine was wrecked, and the pilot so severely injured that he died shortly afterwards.

Lieutenant Rebbeck, who was gazetted in December, 1914, and was only 19 years of age, was the son of the late Colonel Rebbeck, of Bournemouth.

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At the inquest at Thetford on the body of Lieutenant Nigel Deniston Scott, who was killed while piloting a biplane, a verdict of "Accidental death" was returned. The cause of the accident was attributed to climbing too steeply.

* * *

Capt. Walter Gerard Palmer, Indian Army, attached R.F.C., killed on March 5th, was the second son of the late C. E. Palmer, of the Military Accounts Department, Government of India, and of Mrs. Palmer, of Instow. Born in 1888, he was educated at Tonbridge School and Sandhurst, passing out with honours. He joined the Connaught Rangers in March, 1903, and was gazetted to the Indian Army in March, 1904, being promoted Captain in 1912. He was Quartermaster and Royal Adjutant of his regiment, and graduated from the Staff College, Quetta, in January last. In June he joined the Royal Flying Corps as an observer, and was mentioned in dispatches for June and July, 1915. He afterwards obtained his pilot's certificate.

* * *

The following appeared on April 20th:—

PIDGEEON—HICKS.—On April 19th, very quietly, at St. Andrew's, Ashley Place, by the Rev. Claude Williams, Geoffrey Denzil Pidgeon, Lieutenant, Royal Flying Corps, only son of Mr. and Mrs. W. R. Pidgeon, of Lynsted Lodge, St. Edmund's Terrace, Regent's Park, to Muriel, elder daughter of Mr. and Mrs. Arthur Hicks, of 7, Evelyn Mansions, Westminster.

* * *

The following appeared on April 20th:—

An engagement is announced between Captain and Flight Commander A. T. Harris, Royal Flying Corps, youngest son of Mr. and Mrs. G. S. T. Harris, and Barbara Kyrle, only daughter of Major E. W. K. Money, late King's Shropshire Light Infantry, and Mrs. Money, of Seaforth, Bexhill, Sussex.

FRANCE.

The communiqué of April 18th says:—

The French Ministry of War announced yesterday that during the night of the 16th-17th German aeroplanes dropped seven bombs, one of which was an incendiary bomb, on Belfort. Three persons were killed and six wounded, but the material damage was of little importance.

* * *

The communiqué of April 22nd says:—

One of our bombing squadrons threw 20 bombs into the enemy camps near Azannes and Villers-les-Mangiennes, north-east of Verdun.

Eastern Army.—In reply to an enemy air raid on villages on the Greek frontier one of our aeroplanes dropped four bombs on the town of Sofia.

* * *

The communiqué of April 24th says:—

In Belgium, yesterday and last night, our air squadrons twice bombed the station of Vyfweghe, east of the Forest of Houthulst. Thirty and 18 bombs of heavy calibre were dropped on the station buildings during the two raids, and many of the projectiles struck the objects aimed at. All the machines returned safely.

During the night of April 23th-24th our air squadrons carried out several bombardment operations. Twenty-one shells and 8 incendiary bombs were dropped on the station of Longuyon, 5 shells on the station of Stenay, 12 shells on bivouacs to the east of Dun, and 32 shells on bivouacs in the Montfaucon region and on the station of Nantillois.

* * *

It is reported that an enemy aeroplane flew over Boulogne on Sunday, April 16th, and dropped several bombs. One casualty was caused.

* * *

It is reported by the "Petit Journal" that a Fokker monoplane was recently shot down near St. Omer and that the pilot, on alighting, shot at and wounded a peasant lad of 14. His action seems rather strange, as one would have thought the German would have been anxious to propitiate the inhabitants of the country.

* * *

The following account of the formation of the American Squadron of the Aviation Militaire has appeared in the public Press:—

Two American aviators, Messrs. Frazier Curtis and Norman Prince, of Marblehead (Mass.), decided, in the month of December, 1914, to offer their services to France. They assembled around

them several young Americans—James Bach, Elliot Cowdin, H. G. Gerin, Bert Hall, D. G. Masson, Andrew Ruel, and William Thaw—the greater number of whom are students of American universities. By joining the French Army, they said, they wished to help a Republic which is fighting for the liberty of all nations.

The nine American volunteers arrived in Paris at the beginning of the year 1915, and immediately began their instruction in two large schools of aviation. Their certificates obtained, they served for a time in the aerial defence of Paris, after which they were sent to the front. William Thaw obtained the rank of sub-lieutenant in action. He was specially mentioned in dispatches, as were Sergts. Elliot Cowdin and Norman Prince. Cowdin fought victoriously against German aeroplanes. Norman Prince is reported to have taken part in bombardment expeditions.

Whilst these first volunteers were winning the Croix de Guerre, other young fellows came from America and followed their example. At the end of 1915 French aviation had in its ranks more than thirty American aviators, pilots, and pupils. Amongst them were some who gave proof of such great dexterity and audacity and such a military spirit that the High Command decided to form them into an "Escadrille d'Elite."

This squadron is to-day constituted, armed, and equipped. The American officer, the sub-officers, and pilots who compose it are now at that section of the front allotted to them. They will fight together under the command of the French officer who is their chief.

[Mr. Bach apparently landed in the German lines on his first flight on active service. Mr. Frazier Curtis was, unfortunately, invalided out of the French Service early in the history of the Escadrille.—Ed.]

GERMANY.

The communiqué of April 21st says:—

An enemy aeroplane fell down during the fighting at Fumin Wood, south-west of Vaux.

Eastern theatre of war, General von Bothmer's army.—A German air squadron liberally pelted with bombs the railway yards at Tarnapol.

* * *

The communiqué of April 22nd says:—

On April 22nd a squadron of 10 German aeroplanes attacked the Russian air station at Papenholm, on the island of Oesel, at the entrance to the Gulf of Riga, and dropped 45 bombs. Very good results were observed.

A Russian aeroplane was compelled to land.

All the German aeroplanes returned safely, in spite of a most violent fire from the Russian anti-aircraft guns.

* * *

The communiqué of April 24th says:—

A British biplane was brought down in an aerial fight east of Arras. The officers operating the machine were captured.

* * *

The following astonishing version of the Zeppelin raids on England during the period from March 31st to April 6th has been supplied to the German Press as the official version:—

The attack on the London Docks during the night of March 31st-April 1st, far surpassed all earlier attacks in severity and effectiveness. In the north-eastern quarter of the town numerous fires were started and serious damage was done. The district round Great Eastern Street and Great Tower Street suffered particularly heavily. In this neighbourhood a factory was also burned down.

Near the Tower Bridge and London Bridge several bombs fell on a transport steamer and severely damaged it.

At Holland Park several huts and aeroplane sheds, as well as large camps, were hit. Several soldiers were killed here and various aircraft were destroyed.

The London Docks and St. Catherine Docks suffered severely by the considerable havoc wrought in the adjacent workshops. About 350 workmen were unable to resume work the day after the airship attack, in consequence of the destruction of the works. Four armed merchantmen were also hit here.

At the West Indian Docks several anti-aircraft guns were silenced, and in the Commercial Docks several warehouses and various small craft were destroyed. The railway was also seriously damaged, and much storage space was destroyed.

Near the Tilbury Docks a warehouse was burned down and several anti-aircraft guns were damaged.

At Purfleet a munition factory was hit and destroyed.

At various places at the mouth of the Humber great fires were started. Near Grimsby we succeeded in destroying a barracks and in hitting a battery. In Grimsby itself widespread destruction was caused. The gasworks, the electric light works, and the suburban railway station suffered seriously. Outside Grimsby one munition factory was destroyed and another was severely damaged.

Not less heavy is the damage done at the Sunderland Docks. Here in particular the shipbuilding yards of the firm of Swan, Swigham (sic), and Richardson suffered. A ship lying on the stocks fell over, and a cruiser which was ready to be launched was severely damaged. Several ships at the quays were damaged.

Outside Sunderland several munition factories and sheds containing stores were completely destroyed.

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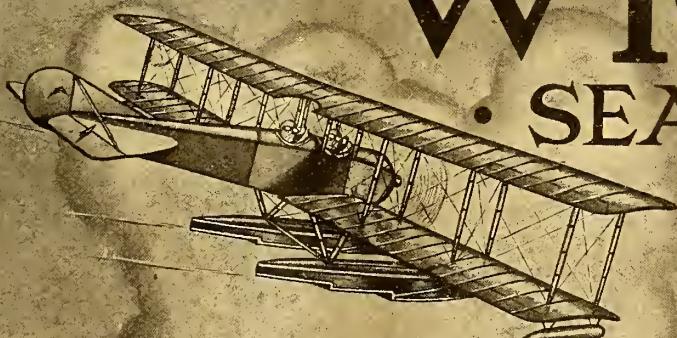
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At Middlesbrough two large furnaces and extensive industrial works were successfully covered with bombs.

In Edinburgh and Leith, too, the damage is very great. Barracks, munitions depots, ironworks, and other factories lie in ruins. Two munition works broke out in flames and were destroyed. The large spirit factory was hit by incendiary bombs and was burned to the ground. The railway station was also materially damaged. A train with material was destroyed. In the port several ships were hit; one English four-masted ship was almost completely destroyed, and a transport steamer with war material was so badly damaged that it could not start on its voyage.

No less was the damage suffered by places at the Mouth of the Tyne. At Haxham a munition factory was destroyed, and at Newcastle a bomb hit the Tyne Bridge.

Many yards and quays on both banks of the Tyne were hit. In the shipyards at Halborn and Gateshead a whole series of factories and slips have been put out of action.

Above Newcastle the munition works at Ryton were destroyed. According to various reports, new ships under construction for the British Navy were also hit, but about this it is, of course, difficult to ascertain details.

RUSSIA.

The communiqué of April 19th says:—

In the Black Sea one of our submarines, although attacked by an enemy aeroplane, succeeded in sinking a steamer and a sailing ship near the entrance to the Bosphorus.

* * *

The communiqué of April 22nd says:—

In Galicia hostile aeroplanes made a raid on Tarnopol, where some bombs were thrown.

South of Novo Alexinetz we found a German aeroplane which had been destroyed by fire. It apparently belonged to the squadron which made the raid on Tarnopol.

* * *

The communiqué of April 23rd says:—

Enemy aeroplanes flew over the Dvinsk region.

* * *

The communiqué of April 24th says:—

On the Western front enemy aeroplanes dropped several bombs on Dvinsk. A Russian aeroplane of the Ilya Mourometz type dropped 13 bombs, each weighing 40 lbs., on the station of Dowdzewas, south-west of Friedrichstadt.

On the rest of the front there were exchanges of artillery fire.

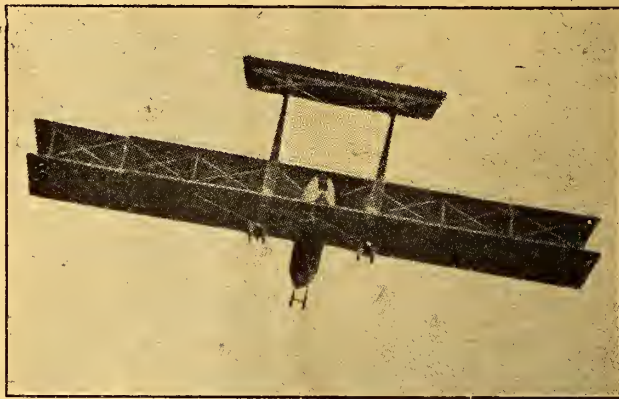
* * *

The German aviators apparently made a pretty strenuous attempt to involve the Tsar in their recent raid on Zhvanets on the Dniester. A squadron of German aeroplanes approached the scene of the review, and were engaged by Russian aviators. Two machines broke through, however, and flew over the parade-ground and dropped bombs. Apparently only one soldier was wounded.

ITALY.

The communiqué of April 18th says:—

Yesterday one of our seaplanes and three French seaplanes, escorted by our torpedo-boats, effectively bombarded important military positions near Trieste and returned safely in spite of violent enemy fire. Four Austrian seaplanes, which endeavoured to attack our torpedo-boat escort while they were returning, were counter-attacked by three Italian aeroplanes and put to flight.



View from below of a three-engined Caproni, taken from an Italian paper.

During the night enemy aircraft approached Venice, but were unable to carry out their raid owing to the sustained fire of our anti-aircraft batteries. One of them, a seaplane, was obliged to descend at sea and was captured by us, the naval officer and the pilot on board being made prisoners.

* * *

The communiqué of April 20th says:—

An enemy aeroplane dropped three bombs on Bassano, but without doing any damage to life or property.

* * *

The communiqué of April 21st says:—

Yesterday afternoon a flotilla of Caproni aeroplanes bombarded near Trieste a seaplane station, upon which 60 bombs were dropped, with obviously very successful results. The aeroplanes, which were fired upon without effect by the enemy's batteries, returned safely.

GREECE.

It is reported from Salonika that on April 21st a French aviator flew to Sofia, dropped four bombs, and returned safely. The distance is about 175 miles from Salonika, so the 350-mile trip is a very noteworthy performance.

German aeroplanes again attacked Karasuli on April 20th, but no appreciable damage was done. French aeroplanes bombed the German camps in the Doiran district, and two other air squadrons bombed Petritch, causing considerable damage.

* * *

A German aeroplane flew over Tenedos (an Athens message of April 20th states) dropping five bombs. Three Greeks were injured.

TURKEY.

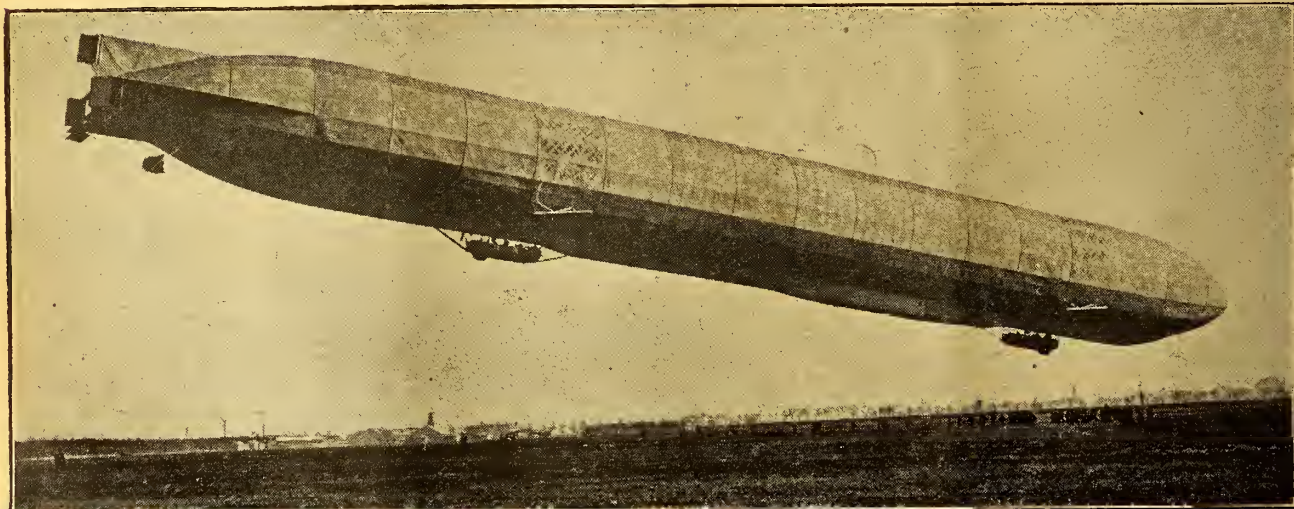
The communiqué of April 18th says:—

On April 14th an enemy aeroplane coming from the direction of Enos flew over Adrianople, dropping two bombs without effect.

* * *

The communiqué of April 19th says:—

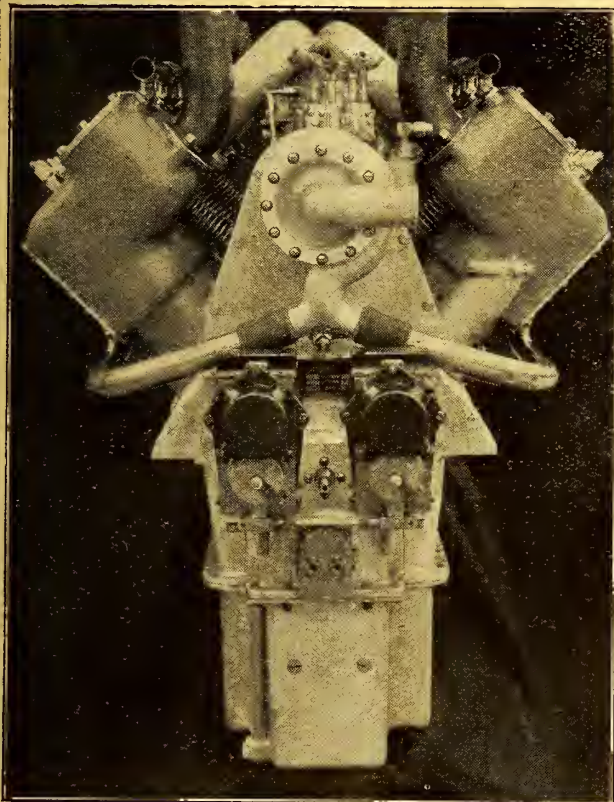
Syrian Coast.—A seaplane which ascended from a ship off Gaza was pursued by machine-gun fire from two of our aeroplanes, which also dropped bombs on the hostile ship.



Side View of the "Hansa," well known to British tourists in Germany. The perforation of the outer skin opposite the propellers is clearly seen in this photograph.



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The communiqué of April 20th says:—

Irak front: No news. The position of the enemy invested at Kut el Amara is becoming very critical. The enemy commander, in order to avoid food difficulties, recently made the population evacuate the town. He is expecting aeroplanes to drop small bags of flour.

[Which only shows that if we had had the few thousands of aeroplanes for which some of us pleaded years ago we might have victualled quite a large army with ease. Apart from the fact that we might have stopped the war by now simply by smashing German towns.—Ed.]

* * *

The communiqué of April 22nd says:—

Enemy aeroplanes flew over Phocœa, a suburb of Smyrna, and Cordelia, where they threw some bombs, without effect.

On April 20th one of our aeroplanes carried out a flight of 300 kilometres over the desert to El Kantara, on the Suez Canal, in three hours, and there successfully bombarded the enemy troops and the camp with bombs. It returned undamaged.

On the night of the 6th one of our seaplanes attacked Imbros and Tenedos and dropped bombs on the enemy's establishments, the harbour of Tenedos, and the camp there.

BULGARIA.

According to an official telegram from Sofia, received at Amsterdam on April 22nd, an enemy aeroplane coming from the south-east on the previous day dropped two bombs on one of the suburbs of Sofia from a considerable height. One bomb fell on a school building and another on a small dwelling-house. The damage caused was insignificant, and there was no loss of life. The aeroplane also dropped several pamphlets announcing the fall of Erzerum and Trebizond. During its return flight the aeroplane flew over the Vitosha Mountain.

AUSTRALIA.

It will be remembered that the work of a band of Queensland enthusiasts who clubbed together to learn to fly on a home-made tractor biplane at Brisbane was described in THE AEROPLANE some time ago.

It is gratifying to learn that four members of this club now hold commissions in the Royal Flying Corps, and four of them are in the Corps as pilot-mechanics. A very fine record for the small circle of the Queensland Volunteer Flying Corps—as the Club called itself on its foundation.

U.S.A.

As was rather to be expected, the path of the Flying Service working with the American expedition into Mexico is not proving an easy one, owing to its poor equipment of aeroplanes and other necessities. During the first few days of the operations the eight machines sent with the army diminished to two by March 27th, two machines being entirely destroyed and the other four being put out of commission.

The country is not the best in the world to fly over, being a bleak waste filled with cut-throat bandits, and a scarceness of water.

Two members of the squadron disappeared on March 19th on the first day of their flight from Columbus, N.M., and created considerable anxiety. Lieut. Gorrell was found after five days by the personnel of a motor-truck train in an uninhabited waste with a leak in his petrol-tank. The breakage was eventually repaired and the machine safely flown to Casas Grandes.

Lieut. Willis overshot brigade headquarters by 36 miles and landed, owing to the darkness, in enemy territory, smashed his chassis, and tramped northwards all night. He was chased by Mexicans, but eluded pursuit and finally reached camp in safety. The machine was finally rescued by a party with a motor-truck.

Lieut. T. S. Bowen was sent back to Columbus, N.M., with a broken nose, caused by a sideslip near headquarters at Casas Grandes.

The American aviators complain of climbing difficulties in the rarefied atmosphere of Mexico, and say that their machines are underpowered. Lieut. H. A. Dargol, flying from Casas Grandes to Columbus on March 25th, a distance of 165 miles, in 2 hrs. 25 mins., with dispatches, had a very bad time over the mountains.

It would appear that the Allies' aviators are having a relatively soft time compared with their American cousins, who seem to work under the worst possible conditions with the worst possible equipment.

CANADA.

The "Evening Telegram" of Toronto states that Bombardier A. E. Hatch, R.F.A., has returned to Toronto after serving in the British Army for 17 years. He is reported to have stated that his section are credited with having brought down 17 enemy airships with their 18-pounder gun!

[Some bag! Some Canadians are nearly as skilful with their imaginations as an American.—Ed.]

NEW ZEALAND.

It is reported from New Zealand that Mr. A. M. Myers, the Minister of Munitions, is opening a fund to purchase an aeroplane which is to be sent to Lieut. Brandon, R.F.C., who on the night of March 31st attacked a Zeppelin and dropped several bombs on it. [One wonders whether New Zealanders really think that R.F.C. officers fly their own private aeroplanes.]

THE INVASIONS OF ENGLAND.

The German aeroplane which flew over Dover at midday on Easter Monday seems to have had a fairly warm reception from the local land batteries. No official notification is made of aerial pursuit. Apparently, for the first time on record, the inhabitants of Ramsgate and Broadstairs were apprised by sirens of the approach of the hostile aircraft in advance of its arrival.

The official announcement that no bombs were dropped while the aeroplane was over the town is curious, and rather indicates a desire on the part of the pilot to avoid hitting non-combatants.

* * *

The information available regarding the Zeppelin raid of April 24th is sparse. Apparently, the relatively high wind accounted for the few bombs dropped, a high wind necessitating the carrying of extra petrol for either the outward or inward journey, and correspondingly fewer bombs.

* * *

Apparently, the minor overseers, temporal and spiritual, of this unhappy country are not immune from the lighting regulations.

The parish council of Burham, near Rochester, has, through its chairman, Mr. John Benjamin, been fined £5 for neglecting to shade the lights during its deliberations. The defence was that a visit from Zeppelins was impossible on such a stormy night, but the magistrates considered the offence serious.

Also at the Greenwich Police Court on April 22nd the secretary of the Baptist Chapel at Catford Hill was fined 10s. for failing to shade the lights of the chapel. [Yet the hiding of a light under a bushel has been deprecated in well-informed quarters, and there has been an injunction to let one's light so shine before men.]

GERMANY AND AMERICA.

The present crisis between Germany and America suggests that Germany is trying to force America to make war on her for political and dynastic reasons. If Germany makes peace under pressure from the Allies alone the people of Prussia will most certainly turn on the Imperial family and the Emperor's political group and hang them on the lamp-posts of Potsdam. And, probably, the people of the various States, such as Saxony, Bavaria, Wurtemberg, etc., will do likewise with their Royal families. If, however, America—not to mention Holland—can be dragged into the war, the German official classes can plead that though Germany could beat, and actually had beaten the Allies, she could not beat the whole world, and that the American Navy just put the finishing touch to the blockade, which made further resistance impossible.

It seems, therefore, that the only way in which German officialdom can save its official face and its private and personal neck is by forcing America to make war on Germany.

Such action on the part of the United States would be distinctly interesting, and probably very useful to America at a very small cost, for it would give the U.S. Army and Navy an opportunity of learning first-hand something about modern warfare in preparation for her Asiatic war of the not far distant future. And the first thing America would learn would be the need for an enormous air fleet.

NEW WEAPONS.

Writing in the Berlin "Tag," Herr von Zedlitz, a Deputy, expresses the hope "that there will be no deviation from the employment of even the most terrible weapons of war as far as their use serves to overthrow the enemy." In this connection he cites "the successful air raids on England and the effective employment of new war weapons in the battles at Verdun."

"Friend and foe," adds Herr Zedlitz, "must reckon with the fact that ruthless use will be made both of the submarine and all our other forces so as to guarantee the achievement of a peace that will assure the future of Germany."

The question one would like answered is why the War Office does not push forward with the one weapon which can break up trench warfare and can give the aeroplane a chance of doing the work for which it is best fitted?

THE HAMPSHIRE MISHAP.

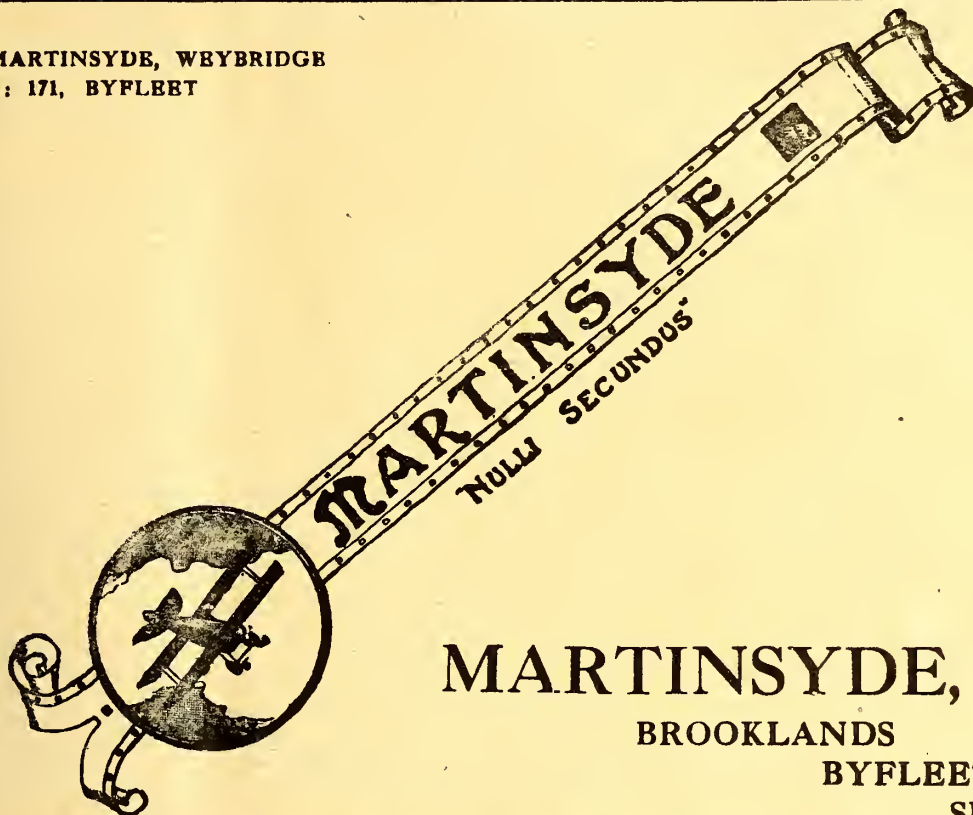
The case of the Royal Aircraft Factory employees, mentioned in THE AEROPLANE last week, came up again before the Farnborough tribunal on April 18th.

A deputation of discharged employees recently attended to complain that although the majority were enrolled in the Aircraft Park of the Royal Flying Corps (T.F.), on dismissal from the factory they were discharged at the same time from the corps, in spite of the fact that they had enrolled for four years, most of them for Imperial service. That had brought them under the Military Service Act, and they protested against being conscripts.

An official from the War Office cleared up the situation by stating that all who wished might return to their employment and to membership of the Royal Flying Corps (T.F.), while any who preferred to transfer to another branch of the Territorial Force might send their names to the War Office, and they would be posted to available Territorial units. Those who had signed Imperial service forms were soldiers still, and therefore were not affected by the Military Service Act as at present constituted. He advised the men who had not so signed to go to the recruiting officer at once; otherwise they would be treated as deserters.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

ON A PROFESSOR.

Some few weeks ago I had the pleasure of discussing the work of Professor F. W. Lanchester as a writer on military aviation. Since then he has disclosed himself in a new manifestation as the author of a political lampoon in the "Daily Chronicle," a paper which has not hitherto shown any very lively interest in aeronautical affairs, and has been chiefly notable as a worshipper of the "God of Things As They Are."

It is somewhat curious that the "Chronicle" should have been chosen as the wall on which to plaster an election poster of Professor Lanchester's design, and the idea automatically suggests itself that the leading Liberal organs, such as the "Daily News" and the "Westminster Gazette," had previously refused to besmirch themselves thus. One assumes that political persuasion of some kind was brought to bear on the editor of the "Chronicle," a Mr. Donald, one gathers, and that the whole scheme was in accordance with the plan usual in party politics, that a man whose arguments cannot be refuted must be personally discredited—as it was so tersely put in the letter to Mr. Balfour read in the House of Commons on April 19th by the Member for East Herts.

However, the "Chronicle's" part in the affair is really a minor matter, and if the use of that paper as the medium for attack brings a knighthood for Mr. Donald another step nearer, doubtless everybody concerned will be pleased. What does matter is that the author of a political lampoon should be advertised as a "Member of the Government Advisory Committee on Aeronautics," with the obvious intention of giving weight to statements which might otherwise carry merely the weight which they deserve.

FROM JERUSALEM TO JERICHO.

So far as the Member for East Herts is concerned, his own statement in the House answers a great deal of the lampoon in question, but one may perhaps point out that for all that he is such an ingenious person, he is also singularly ingenuous, and that in going down from the Jerusalem of the Air Service to the Jericho of the House of Commons he fell among people of a class with whom he was not accustomed to associate, and was not sufficiently on his guard. There is a quotation, from Shakespeare, I think, about a purse being trash but a good name being better worth appropriating.

Therefore it is possible that an astute politician might draw a subtle distinction in his conscience between definitely promising a man a safe seat and the less definite proposition of suggesting that the said man might be recommended for a safe seat if he consented to support a party. I commend Mr. Steel-Maitland to cast back in his memory for a proposition of that nature, for that is the trend of the conversation as reported to me on the day it took place. Possibly the Member for East Herts omitted in his intense earnestness to note such a difference, as unobtrusive but as definite a division as if it were of the latest unbreakable glass.

Somewhat similarly Mr. Bonar Law, weighted down by the cares of a Coalition Cabinet and a disaffected Party, may have been so engrossed in his own thoughts, or in the consideration of magnetic iron ore as contraband and its influence on the Glasgow Iron Ring, that he may never have noticed what this earnest young man was saying to him and to Lord Edmund Talbot. Thus he would be justified in denying that any such conversation ever took place, for it takes two to make a conversation. But it may be noticed that Lord Edmund Talbot has never denied that a statement similar to that quoted was made in his office in the presence of Mr. Bonar Law by the present Member for East Herts.

It is possible that these simple explanations of the working of the political mind may account for the diversity of the statements made in the House of Commons, and may also account for the difference between "The Invention" and "The Fact" as set forth in Professor Lanchester's lampoon.

WHAT IS A PROFESSOR?

One gathers that Professor Lanchester has denied on occasion the soft impeachment that he is a professor. Nevertheless, he is apparently well deserving of the title. A professor is, one assumes, a person who professes. Professor Lanchester, it seems, professes to be an authority on matters aeronautical. His appointment to be a Member of the Government Advisory Committee on Aeronautics, as extensively advertised in the "Chronicle," shows that his profession has been accepted as proved in high quarters. He appears to be, in fact, one of the Government's leading "aeronautical experts," though one would not perhaps apply to him all the opprobrious epithets which General Henderson applied so ably and so humorously to non-official "experts" in his preface to Professor Lanchester's book.

Professor Lanchester professes his belief that the inquiry into the state of the Flying Services will fail. That remains to be seen. Professor Lanchester says that he has never sat on a fence in his life. Nor have I. In both cases the fence is to be congratulated. Anyhow, I say unhesitatingly that if the official inquiry is fairly and honestly conducted, and that if counsel for the prosecution are permitted, as well as counsel for the defence, the charges of maladministration must succeed.

TAKING A LEAF.

However, in view of the important position into which Professor Lanchester's profession has pushed him, it may be well to examine claims set forth on his behalf to consideration where practical aviation is concerned, and to take a leaf out of his book by adapting to his case his own general lines of argument.

THE PROFESSION: That Professor Lanchester is an authority on the theory of flying.

THE CONCLUSION: He has written two ponderous tomes, entitled "Aerodynamics" and "Aerodionetics" respectively, which profess to be mathematical expositions of the theory of flying. On these volumes his reputation in aeronautics was founded. Not being a mathematician myself I can only accept the statement of others better informed, who say that these expositions are not mathematics in the accepted sense of the term, but some science of symbols invented by Professor Lanchester. It is, however, a fact that no successful aeroplane has been constructed from designs based entirely on those volumes, and that most successful aeroplanes have been built by people who have never studied those volumes and would not understand them if they did.

THE PROFESSION: That Professor Lanchester is an authority on aero-engine design.

THE CONCLUSION: In 1910 or early 1911 the Daimler Co. of Coventry were at work on a radial air-cooled engine of Professor Lanchester's design. It was a cross between the Knight slide-valve type and the ordinary Anzani. A considerable sum was spent on those experiments, but for some unexplained reason the engine was a failure and never succeeded in making a machine fly. Professor Lanchester was then an advisory engineer to the Daimler Co., so one assumes that he did not pay for the experiments himself.

A week or two ago Professor Lanchester professed to instruct the world on the practical matter of air-cooling engines—in the "Autocar." The following week Mr. Granville Bradshaw, a practical engine designer of proved ability, proceeded to make hay of Professor Lanchester's theories.

THE PROFESSION: That Professor Lanchester is an authority on aeroplane design.

THE CONCLUSION: In 1912 or thereabouts Professor Lanchester, again in an advisory capacity, was the chief designer of a wonderful aeroplane built at Bognor by Dr. White and Mr. Norman Thompson, later White and Thompson, Ltd., and now the Norman Thompson Flight Co., Ltd., and highly successful builders of aircraft for land and sea work, under the present supervision of Mr. Thompson and Mr. Beedle. The "Lanchester" machine was built strictly in accordance with all Professor Lanchester's theories. It never succeeded in flying, though one of the best pilots in England did his utmost to make it flyable. It was, however, highly successful as a mud-plough, and its ability in flinging the surface of the earth about possibly gave Professor Lanchester a lesson which was useful in the "Chronicle" operations. It does not appear that Professor Lanchester paid for these experiments, which, I gather, cost many thousands of pounds, as the machine was most elaborately built.

THE PROFESSION: That Professor Lanchester is an authority on air-screws.

THE CONCLUSION: In 1915 I happened to be visiting a certain workshop wherein was a badly damaged flying-boat. I was there shown the remains of a three-bladed propeller which had been inspected and approved by Professor Lanchester a few days before. Each blade of this propeller was of wood and tapered to a round shank. This round shank was stuck into a socket in the metal centre portion of the propeller, which had three arms. Bolts from front to back clamped the sockets onto the wooden shanks. The idea was to make a propeller the pitch of which could be varied to suit different machines by twisting the blades in the sockets. Unfortunately, the sockets were designed with the taper the wrong way, so that as soon as the engine got going centrifugal force pulled the blades out and distributed chunks of timber around the shop. The planes of the flying-boat were damaged and the engine-seating was wrecked by the bucking of the unbalanced engine. The lesson given in log-rolling by the amount of timber distributed may have been useful to Professor Lanchester, but otherwise the experiment was not a success.

LACKING EVIDENCE.

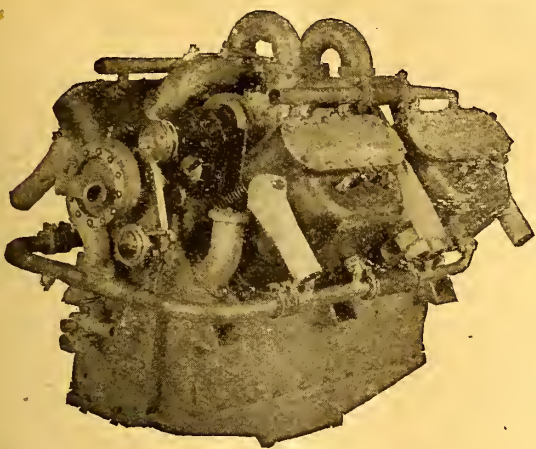
I can discover no other cases in which Professor Lanchester has been directly connected with design and construction of aircraft, and it is regrettable that the only instances discoverable show that his engine, his aeroplane, and his propeller were alike unable to fulfil their functions.

Professor Lanchester is certainly to be congratulated on the fact that he did not have to pay for his experiments out of his own pocket. One would not on that account cast aspersions on his moral character as his friends of the "Chronicle" cast aspersions on the Member for East Herts when they discovered that on paper Mr. de Broughton financed the aeroplane firm founded by that gentleman for experimental purposes before the war.

On careful consideration one cannot feel convinced that Professor Lanchester's opinion as an adviser on practical aeronautics is worthy of very serious consideration.

As for his status as a theorist, that matters very little, for all the best aeroplanes, without exception, have been built on the rule-of-thumb theories of practical men, and no pure theorist has yet produced an aeroplane worth having. And, after all, what the Royal Flying Corps wants at the front are aeroplanes better than those the Germans have got.

It does not appear obtrusively that Professor Lanchester or any other section of the Government Advisory Committee on Aeronautics has assisted materially to that end.—C. G. G.



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THE DOVER AFFAIR.

The Dover Magistrates on April 20th committed Edgar Charles William Middleton, stated to be a journalist and ex-naval airman, for trial at Kent Assizes on a charge of unlawfully attempting to obtain information with respect to the movements or disposition of the Royal Naval Air Service such as might be of use to the enemy.

The Chairman (Capt. Cay, of the Royal Navy) asked how many officers Middleton had tried to pump. Mr. Chitty said he had only evidence that the defendant asked questions of two officers, but he volunteered remarks to three. Having been in the Service he knew perfectly how very strict were the regulations forbidding officers to give any information, and he was leading those with whom he talked into very great peril.

Lieut. Robert Metcalfe Spence, assist. paymaster attached R.N.A.S., said he knew defendant when in the Air Service. He met him and asked him what he was doing in Dover. Middleton replied, "I have come to Dover to do a bit of spying for Pemberton-Billing." Witness asked Middleton what he wanted to know and the reply was, "He"—referring apparently to Pemberton-Billing—"wants to know if the officers are still quartered about two miles away from the aerodrome and have to make the journey each mealtime."

Middleton gave witness to understand that there was a combination working against Captain Lambe, R.N.A.S., composed apparently of Mr. Pemberton-Billing and Mr. Chilcott, and Commodore Sueter's name was also mentioned in this connection. Middleton said, "It would not take much more to have Lambe kicked out."

[To those in the know this is really a gem of humour.—Ed.]

Witness added that in Capt. Lambe's absence he communicated his conversation with Middleton to Flight Commander Bromet.

Flight Lieut. Ronald Portman Cannon said they met outside the seaplane station on the 12th inst. Witness said, "Hallo, Middleton; what are you doing at Dover?" He replied, "I have been sent down to do a bit of spying for Pemberton-Billing," or words to that effect. The witness made a suitable statement when Middleton told him that.

Mr. Muir remarked that things which seem suitable are not always decorous. (Laughter.) The witness still hesitating, Mr. Chitty said: If you leave out the adjective you can tell us the rest of the sentence.

Witness: The first part of it was simply "You fool," with something in between. (Laughter.) He added that Middleton

took him to the Grand Hotel to lunch, and there asked whether they still did anti-aircraft patrol. He also asked whether arrangements had been made to quarter the officers elsewhere or at the aerodrome.

Mr. Muir for the defence suggested that his client's way of talking was the very reverse of restrained, and that he used exaggerated language concerning everything. The witness hardly agreed.

Mr. Muir then suggested accused talked a little tall. "Swank is the word, is it not?" (Laughter.) Witness: "No, not swank. He used to have a firm opinion on things, and say what he meant. I don't know quite how to express it." Mr. Muir: Did he use the language of hyperbole? Witness did not agree with this or with other suggestions made by Mr. Muir until the latter put it that it was not Middleton's habit to understate his views. Witness agreed to that, and also that if anything the defendant overstated them occasionally.

Mr. Muir: Did he say what his acquaintance with Mr. Pemberton-Billing was, whether slight or otherwise? Witness: He mentioned booming him in the "Daily Mail." (Laughter.) Witness added that Middleton said that either Commodore Sueter or Capt. Lambe would have to leave the Service soon, and he expected it would be Capt. Lambe, as he had no Press backing. (Laughter.)

Flight Lieut. Ryder Young deposed to Middleton remarking that the more power Pemberton-Billing had the less would be Capt. Lambe's power.

Detective Sergeant Hugh Ashley, of New Scotland Yard, stated that on the 13th inst. he and Police Sergt. Haines examined Middleton's apartment in Woburn Place, London, and found a number of documents now produced. They included an Admiralty letter dated December 15th last, stating that the defendant had been found unsuitable for the Air Service. There was also a proof slip signed "Air Pilot," sent by the "Daily Mail" to the Censor. There was a letter signed by Middleton, apparently written to Mr. Pemberton-Billing, and saying, among other things, "A few days ago I offered my support in your election campaign, but since that time various facts concerning your past career and present supporters have come to my knowledge, and I cannot now see my way to support you."

[Which is also more than funny.—Ed.]

A manuscript article was next put in, and Mr. Chitty asked that it should not be read, as it contained matters that should not be read in public. Two packets of developed

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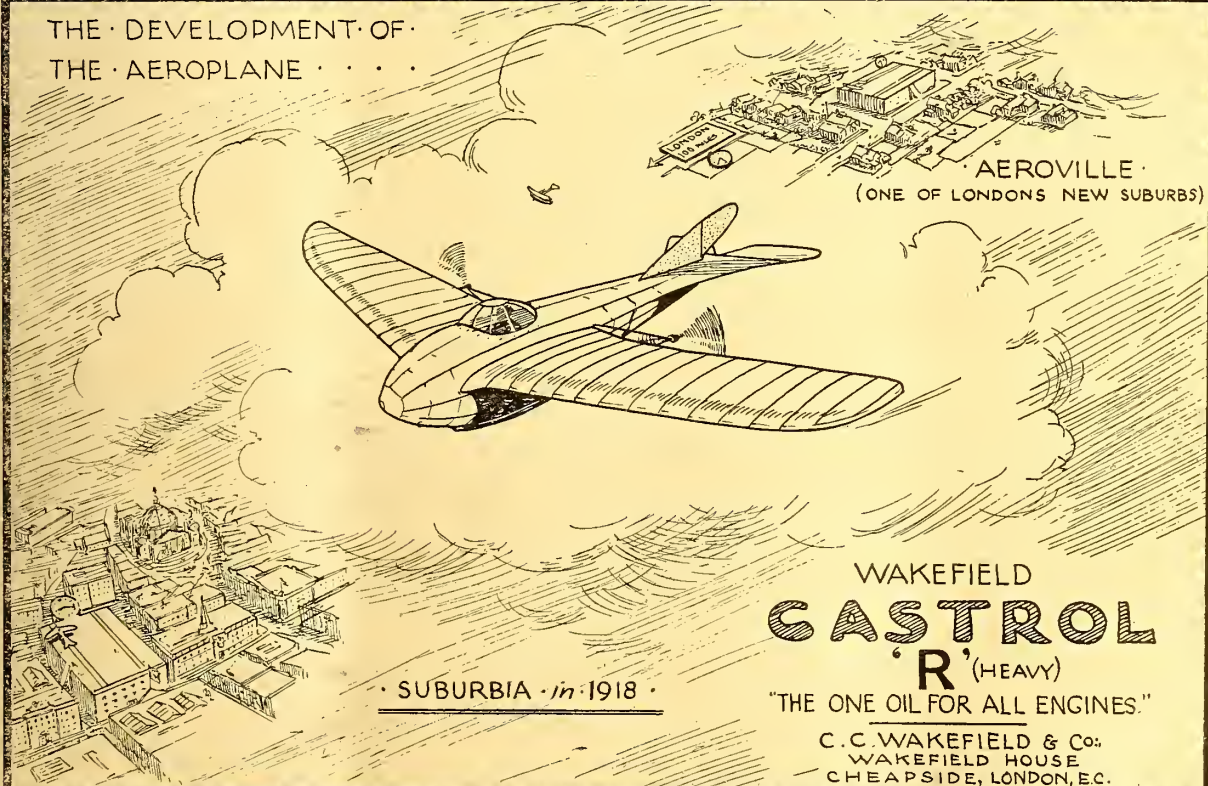
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films were also put in. Mr. Chitty remarked that they were films of captive balloons and so on, and, strictly speaking, no civilian should be in possession of them.

[Very strictly speaking, one imagines.—Ed.]

The detective said they also found a tape message in cypher. They had not been able to decipher it, and had sent it to the Admiralty.

Mr. Muir, on behalf of the defendant, pleaded not guilty, and reserved his defence, asking that his client should be released on bail. Mr. Muir said there was not the smallest reason for supposing that he ever intended to make use of the information he was acquiring, except that it might be put in Parliament as a question. Capt. Bennett-Goldney, M.P., and Mr. Joynson-Hicks, M.P., had both been asking questions in Parliament, and had stated that they had been acquiring information in this district on the same subjects. So counsel supposed that the Admiralty would presently have them here to stand their trial with the defendant.

After the defendant had been committed to the assizes bail was allowed himself and another person in £50 each.

AN IMPORTANT BOOK.

One of the most important of the various successful series of articles which have appeared in THE AEROPLANE was that series on "Aeroplane Design" written by Mr. F. S. Barnwell, then of the British and Colonial Aeroplane Co., Ltd., of Bristol, and now Captain, R.F.C. After these articles had appeared, so large was the demand for complete sets that it was thought well to republish them complete. Owing to various delays, such as shortage of labour and paper, a considerable time has elapsed since the articles appeared, but they have now been published by McBride, Nast and Co., in very handy form, under the title "Aeroplane Design." Capt. Barnwell kindly consented to edit the articles prior to re-publication, and sundry minor alterations—the result of later experiences—have been made, though no general principles have called for modification.

The book does not profess to deal with aeroplane design for the benefit of the highly trained scientist, but it sets forth with great clearness the general principles to be followed by any aeroplane designer, and treats the subject in a manner which can be easily understood by any engineer, even though he may not have had hitherto any experience of aeroplane work. For this reason it should be of very high value as a text-book to the great number of engineering draughtsmen at present employed in aircraft works and to those aircraft workers who take an intelligent interest in their work. Officers in both the Flying Services will also obtain a much better understanding of their machines if they study Capt. Barnwell's method of design.

Such formulæ as appear are of the very simplest kind, and the tables given in the various illustrations are of a most enlightening nature.

Following on Capt. Barnwell's section of the book there is a simple explanation of inherent stability which was written by Mr. W. H. Sayers when a member of the staff of THE AEROPLANE, and recently brought up to date in detail. Mr. Sayers is now Lieutenant, R.N.V.R., attached R.N.A.S. for experimental work, and those who remember his treatment of technical subjects in THE AEROPLANE before the war will recollect his ability to express himself in language easily understood by those without technical training.

His explanation of the operation of inherent stability forms a most useful supplement to Capt. Barnwell's work, and should be highly educative to designers and flying officers alike. His explanation of spiral dives and uncontrolled spinning in aeroplanes will help to a better understanding of these dangerous phenomena by those who suffer from them.

The price of the book is 2s. 9d., post free, from the Wm. Dawson Publishing Co., Ltd., 2, Breems Buildings, London, E.C.

"FROM MONS TO YPRES."

Mr. Fredk. Coleman has certainly produced one of the most successful books on the war that has been written so far, and he has achieved success mainly because he writes only of such part of the war as came within his personal vision. As volunteer driver to British General Headquarters in France, Mr. Coleman had a unique seat in the stalls of the early theatre of war.

The book only touches indirectly on aircraft, but it is of the greatest interest to students of aviation because it indicates so plainly the lack of British aircraft throughout the operations which included the retreat from Mons. Everyone, of course, possesses the greatest admiration for the magnificent work done by the four squadrons of the Royal Flying Corps which went out with the original Expeditionary Force; but from Mr. Coleman's account of the lack of continuity in the British line at that time it seems quite clear that the distribution of the British squadrons along the whole of the Allied front resulted in the relative blinding of the British forces on which so much depended at the time.

The whole book is written with the dispassionate pen of the neutral, and is thoroughly to be recommended to those who really want to know the kind of thing that happened in the opening scenes of the war.

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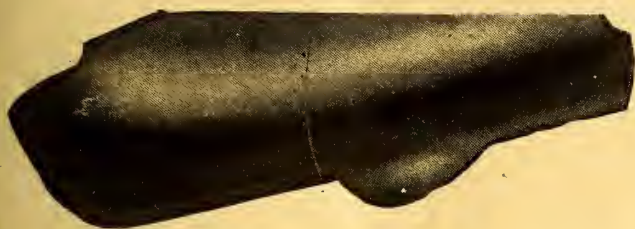
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Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

On the other hand, the Argus Motoren Gesellschaft—who may be regarded as the Aster company of Germany—with their long experience of building conventional and reliable trade-motors, have certainly produced that serviceable, albeit second-rate, project, which, as Moltke observed, is to be preferred to the unused ideal. As such it has proved its merits in only too many German machines. Still, one does not imitate the second-rate, especially of the motor-car type of design. One tries for the best; unless one is compelled to produce the tenth-rate Official Effort and endeavour to make it run, or nothing. So apart from the Benz and Mercedes, we can really afford to neglect the German school of aeromotor design—from which we have nothing to learn—while envying it the encouragement it receives.

NEIGES D'ANTAN.

On the contrary, when one remembers such victories as the cross-Channel race of *Princesse Elisabeth*, won without missing a valve-beat, and the triumphs of *Trefle-à-Quatre*, *Pi-Quitt*, and others at Monaco, while we had mislaid our sovereignty of sea-sport, it seems well worth while to review certain examples of French practice in vertical types, that have only suffered temporary eclipse during the rotary obsession of the last five years, and now seem more likely than ever to revive—indeed, are being revived in some cases—in view of the need for more power with something like the normal degree of four-stroke simplicity. As an example of what might and should have been in the aeromotor way, but for some unexplained reason never was attempted, one can but regard Delahaye. But for what was once, in the early days of aviation—in the ancient Tellier combination very much to the fore at the only Trouville meeting—and is again understood to be coming into use, we may take certain of the Panhard models as the most significant examples. To be admired, at least, if they show us nothing wholly original.

PANHARDS OF THE PAST.

Of these, the best—if it were adapted rather than brought up to date, for in essentials it is as good as ever—and in many respects the most suitable for military use, is the four-cylinder unit mounted model that was taken out of the previous season's emergency racing-car—the last attempt of this firm to win circuit honours—and installed aboard M. Pirmez' *Princesse Elisabeth*, after which it ran through two hard-thrashed seasons without a single breakdown.

This model—which, as far as I remember, measured about 120 mm. by 130 mm., and gave as much as 60 h.p. at 800 r.p.m. or so—was of a simple enough design, singly mounted steel-cylinders with spun-copper corrugated water jackets, and detachable cast-iron heads.

Nothing, so far in that, except that the weight was brought down to about 5 lbs. per h.p. with no special attempt at weight-stripping. The only distinctive feature was the trefoil shape of the heads; the largest of the three "leaves" forming a flattish, but still amply water-jacketed, combustion-chamber, while the smaller two were the pockets of the valves; both operated from a single cam-shaft, the housing of which, as well as the modelling of the rest of the crank-chamber, were very like the present Beardmore aeromotor.

This head—it was always an essential of Panhard practice at that time—made a metal-to-metal step-joint with the tops of the cylinders; and this form of joint, in combination with the copper and asbestos gasket-packing of the head-and-cylinder jacketing, constituted a gas and water seal that never leaked or blew under the hardest service. Another model—of a contemporary series used for other road competitions than actual racing—was the same except that the head was hammer-shaped, pocketing the valves on either side. But either, with appropriate accessory design, would fill to-day's aviation needs as well as any.

AND THEIR POSSIBILITIES.

Still another and more compact one had its cylinders actually formed and mounted on the crank-chamber, unit fashion, but had its water-jackets cast open fore and aft with milled faces, grooved for a packing, and butted together so as to form a monobloc jacketing, with a single water-inlet and outlet.

Here, at any rate, was no greater weight per cylinder than exists in most aeromotors to-day, that have their jackets cast uniform with the cylinders, and yet, obviously, much weight saved that these others retain, in the shape of piping. So far, at least, it was as light a job, yet cheaper to make, than even the Benz: in which, as we have lately seen, the jackets are applied by welding on, and, in any case, have the water-unions this Panhard model did not require.

So far, then, for its revivals in new series, the Avenue des Acacias and its clients, have the choice of two systems, preferably the latter. There is this to be said, however, that its very com-

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compactness shortens available bearing space; and would, therefore, in the six-cylinder model aviation most demands, require the cylinders to be mounted in two triad groups, with an extra long central bearing.

The older model, of course, might follow the time-honoured Panhard practice of having a bearing between each crank, and its own later system—of which the Benz was a copy—of short spout-joints between the cylinders for the water connections. In either case, too, for the crank-chamber, there would be no need to go beyond one of the firm's own oldest designs for a slow running marine motor.

THE POLICY OF POSTPONEMENT.

Nevertheless, still more interesting are the two types which Panhards actually produced in their somewhat tentative "wait-and-see" fashion, for such demands as aviation might develop, rather than to hasten that development by their own special efforts; showing, in accordance with their usual policy, no haste to take the lead, but rather readiness to take it if and when offered.

Which goes far to explain why, although their renewed combination with Quai de la Rapée was quite good enough for M. Dubonnet to perform well with at Rouen, leadership for once eluded them so far that they never cared to pursue it. This, rather than any defect in the product, explains why so little has been seen of the two special models they actually produced.

This was the more unfortunate, because their first model not only represented an original solution of the concentric-valve "problem," but such a good one that it would have probably rehabilitated that ideal in four-stroke aeromotor design, the theoretical advantages of which had so far merely been obscured by careless elaboration or downright defective construction, rather than any mechanical just cause and permanent impediment.

PUTTING THE LID ON.

Did you ever notice that a watched pot never boils until you forget to watch it for an instant, when it always boils over? And did you ever catch the sly, comprehensive grin, in which it lets out all the steam in one brief gasp? The bane of cookery truly; but the ideal of motor design. If only the cylinder head were one huge pot-lid which we could raise ever so little and close again five hundred times a minute and more, and keep fast shut between whiles. If for this purpose we only had some fixture in adjacent space to anchor it to. And if only—perhaps half a dozen other apparent impossibilities; the least of which would be to divide that lid so as to separate the burnt gas from the raw during the four infinitesimal periods of the cycle. Alas, then, for the limitations of mechanics, one would say, but for the mechanical genius that has been called forth by the freakish demands of the i.c. motor of all breeds.

Theoretically, of course, ports, with and without sleeves to assist, will achieve just that pot-lid lift effect. But as, in the four-stroke cycle, they may only do so in the manner of the youth who asked for a "fuf—ew matches," and then for a "fuf—ull-box," mechanical complications out of step with the crank-shaft, become necessary. Whereas openings and closings on the one hand, and cycle periods on the other, are equally divided, and timed to occur in pairs during each half of the crank movement in the two-stroke motor; and so the sleeve, if any, may move at the same speed as the piston without any intermediate dwell.

Consequently—since the four-stroke has the majority-vote of about ninety-nine to one—manufacturing considerations compel us to the conclusion that any sort of valve is at least lighter and cheaper than any sleeve, with the valve gear, common to both; and so to revert to pure pot-lid imitations as nearly as possible. Hence the numerous concentric-valve devices, of which the d'Ecquilly was the earliest some forty years ago, just as the one which is the distinguishing feature both of the 50 h.p. Panhard vertical-type aeromotor and the 60 and 120 h.p. Dansette-Gillet is probably the latest. Both are similar rather than identical as to the valve itself; but as the Dansette-Gillet has two rockers and tappet rods per cylinder instead of one, there is no saving of weight.

(To be continued.)



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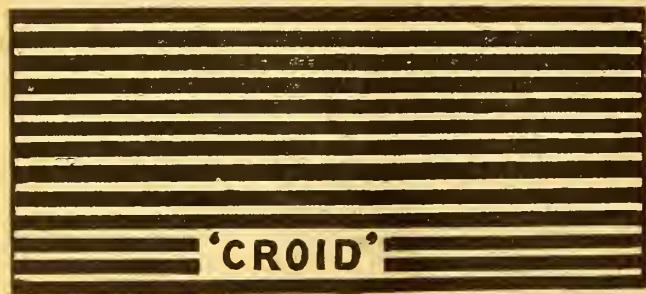
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THE BOURNEMOUTH FLYING SCHOOL.

It seems only appropriate that Bournemouth, which will always be associated in the history of aviation with one of the earliest flying exhibitions in the country, should now become a recognised school centre. Early in January last the Bournemouth Aviation Company was founded by Mr. F. E. Etches, who has for a long time past been connected with aviation, and who acted for some months as manager for Mr. Gustav Hamel with considerable success.

His personal energy must be excellent, judging by what he has accomplished in the short period of four months. A fine aerodrome has been laid out at Talbot Village in most attractive surroundings. A short journey by the tram labelled "Winton" from the centre of the town, followed by a few minutes' walk along a beautiful avenue of pine trees, brings one to the main entrance. It is safe to say no aerodrome in the country has a more charming approach or a more convenient situation.

The field at present consists of 60 acres of level turf, surrounded by low hedges. The surface is very good indeed, and as the sub-soil is gravel, mud is practically unknown, even after the heaviest rains. Adjoining the ground are many large fields where landings may be made with complete safety, even by the Army aeroplanes which occasionally call.

One large hangar has been erected, together with office accommodation, and it withstood the recent gales without damage. The school equipment at present consists of three Caudron-type biplanes, built by the London and Provincial Aviation Co., of Hendon, and fitted respectively with 35, 45, and 60 h.p. Anzani, the two latter being dual-control two-seaters. A fourth Caudron-type machine has been built at Bournemouth under the supervision of Mr. Samuel Summerfield, the school instructor, who has trained local workmen. Every part has been made on the spot, and the workmanship appears quite excellent. The assembling will probably be completed during the present week.

One pupil has already taken his ticket here, but he had the misfortune to break a crank-shaft when completing his tests, and this somewhat delayed school-work. Eight or nine other pupils are now ready for their tests and await the first spell of fine weather.

There is plenty of good living accommodation for pupils within a few minutes' walk of the aerodrome, the cost being extremely reasonable. Mr. Etches is in constant attendance, and the pupils appear to be really keen, never missing a chance of early morning practice. Mr. Summerfield has had plenty of flying experience, having learned on a Bristol biplane years ago under the late Mr. Hotchkiss. The methods of the school must be good, as there have been no mishaps, beyond one or two trivial breakages, such as skids or wing-tips.

On Good Friday 3,000 spectators witnessed some thrilling flying by Mr. Summerfield, as well as displays by several of the pupils. At 300 feet or higher the air was very "bumpy," owing to the prevalence of boisterous cross-winds, and the flying in consequence was very interesting.

On Saturday there was a gale blowing, and two flights only were made by Mr. Summerfield, one of them with a lady passenger, the crowd being very appreciative. They were afterwards given an opportunity of examining the machines at close quarters and having the construction and controls explained to them by the staff.

On Sunday no flying is permissible, according to the lease of the ground, after the hour at which the populace are supposed to be starting for church. It may be mentioned in passing that Bournemouth has a reputation for respectability to maintain. Recreation is not encouraged on the Sabbath. Few restaurants are opened, the cinema is prohibited, and Sunday trams have only been permitted during the past year or two. School work takes place early in the morning, however, whenever conditions are favourable, and up to the present Bournemouth seems to be none the worse.

On Easter Monday there was a good attendance, although the weather looked far too rough for any flying. Mr. Summerfield made a very plucky flight in a wind which appeared to vary between 30 and 45 miles per hour. He was tossed about very badly, but made a safe landing, being heartily applauded by the crowd. It was a fine exhibition of wind-fighting.

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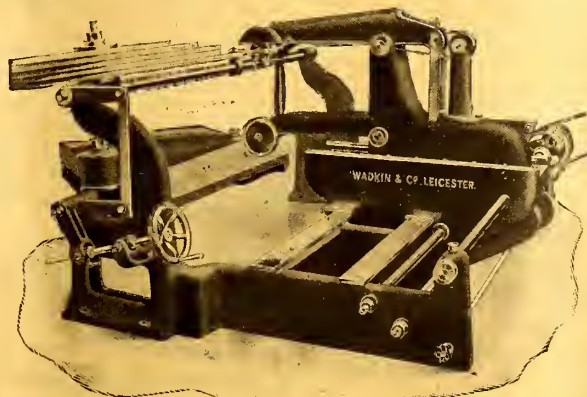
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Among other visitors during the week-end were Mrs. Stocks, Capt. Frank Goodden, R.F.C., Mr. G. H. Bettinson, formerly manager to Mr. Edwin Prosser, and now holding a commission in the R.N.A.S., and Mr. Bailey, of the General Aeronautical Co., Ltd., the latter gentleman having the misfortune to be a witness of the fatal accident to an Army pilot who was leaving the aerodrome early on Monday morning.

The Bournemouth Aerodrome has every prospect of a useful career. Exemption from military service has been granted to the staff as long as they are engaged in teaching flying, and with so keen and experienced an organiser as Mr. Etches at the head of affairs those who join the school may confidently expect rapid and thorough tuition in pleasant and healthful surroundings.—D. W. T.

EASTER AT HENDON.

The holiday week-end at the London Aerodrome passed off very successfully, although the weather was not ideal. Good attendances were noted on each of the four days on which special displays had been announced.

A new Grahame-White machine made its debut on Friday, piloted by Mr. C. Grahame-White. It is somewhat on the lines of the improved school machines constructed by this company, having a 60 h.p. le Rhone engine and accommodation for a pilot and two passengers. Mr. Sydney Pickles gave a very fine display, and other pilots out were Mr. M. G. Smiles on a Caudron, and Messrs. B. F. Hale, J. S. Winter, H. Biard, E. Pashley, and Osipenko, all on Grahame-White biplanes.

On Saturday there was a considerable amount of flying. The wind was blowing at from fifteen to thirty miles an hour in the early afternoon, and it was nearly half-past three before the demonstrations began. Then, however, Mr. Grahame-White, in his new three-seater, and Messrs. B. F. Hale, H. C. Biard, and Osipenko, in Grahame-White biplanes, covered several circuits of the aerodrome. M. Osipenko accomplished some good banking, and Mr. Biard gave an exhibition of switchbacking. Later, Mr. Cecil Pashley and others took up passengers, but chief interest was evinced in a flight by Mr. Grahame-White, accompanied by the well-known motor dealer, Mr. Charles Jarrott.

In the course of the afternoon two members of the Royal Naval Air Service were in the air for nearly an hour and a half, during the greater part of which time they flew at an altitude of over 5,000 ft.

The attendance on Sunday was again very good, and visitors were well entertained.

A cold south-westerly wind wind blew across Hendon Aerodrome on Monday at a velocity of from 35 to 40 miles an hour in dangerous ground gusts which made the conditions very unfavourable for aviation demonstrations. There was a large attendance of holiday visitors, who were rewarded by some thrilling exhibitions by Mr. Sydney Pickles. He flew a Curtiss biplane at an altitude of 1,500 feet, and gave a sensational display of looping, nose-diving, and banking at exceedingly steep angles. Mr. Grahame-White again flew the new G.-W. biplane, and despite the gusty wind several good flights were made with passengers of both sexes.

SCHOOL REPORTS.

HENDON.

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Eights or circuits alone: Messrs. Wood, Cox, and Baron D'Opstael.

Machines in use: 50 and 60 h.p. Ruffy-Baumann tractor biplanes.

AT THE BEATTY SCHOOL.

Instructors: Messrs. G. W. Beatty, R. W. Kenworthy, G. Virgilio, H. Sykes, A. E. Mitchell, H. Fawcett.

Pupils out during week: Messrs. Branford, d'Allesina, le Champion, Martin, Mossop, Sellars, Parsons, Knox, Smith, Brewerton, Phillips, Stanley, Tjaarda, Hick, Skeet, Earl, Cuthbert, Dowding, Davy, Gaskin.

Certificate was taken by Capt. H. W. G. Jones on the 16th.

Machines in use: Beatty-Wright dual-control single-seater propeller biplanes; Caudron dual-control single-seater tractor biplanes.

BOURNEMOUTH.

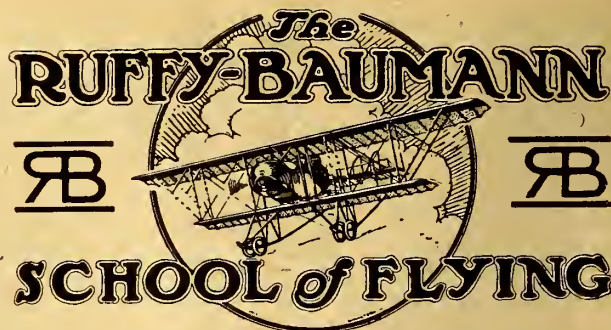
BOURNEMOUTH SCHOOL.

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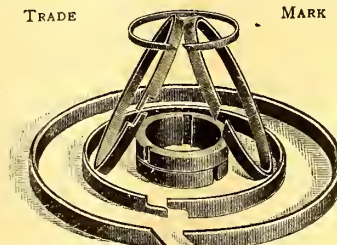
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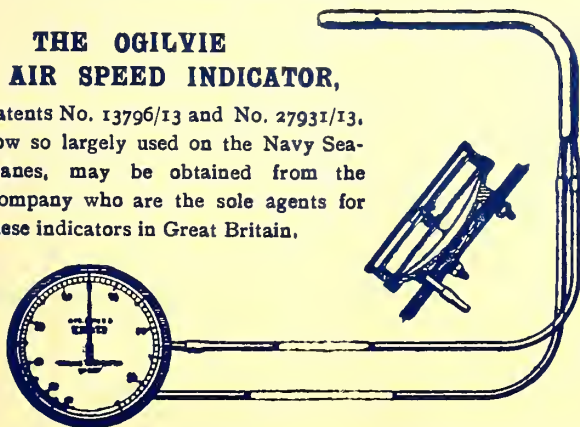
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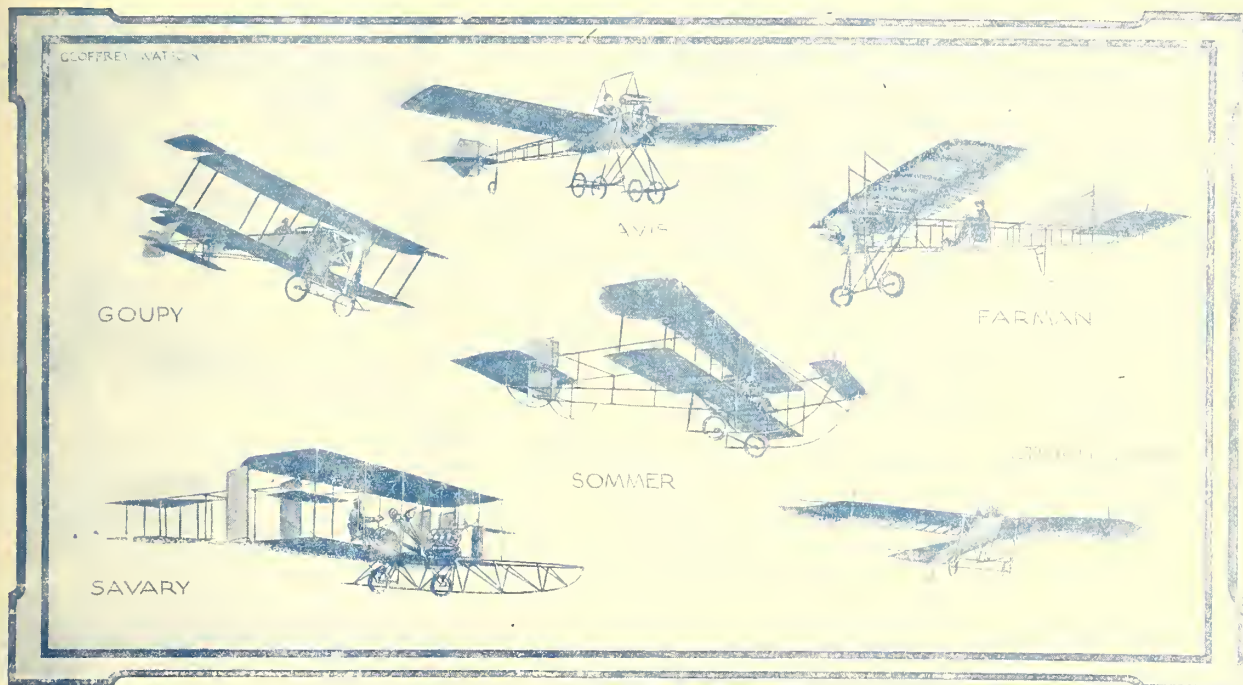
Edited by
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Vol. X. No. 18

ONE PENNY WEEKLY

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MILESTONES—XXVII



In 1910 a number of novel machines were produced. The Avis monoplane with Anzani engine was flown by the Hon. Alan Boyle at Brooklands and elsewhere. Note the cruciform universally jointed tail. The Goupy biplane with 50-h.p. Gnome was an early French tractor, notable for its hinging wing-tips. The Farman monoplane was a curious "knock-up" job, chiefly composed of standard box-kite fittings. The Sommer biplane with 50-h.p. Gnome was a development of the box-kite with a shock-breaking chassis. The Savary biplane, also French, was one of the first twin tractors to fly. The model illustrated had an E.N.V. engine. The position of the rudders on the wing tips is noteworthy. The Austrian Etrich monoplane was the first successful machine of the Taube class ever built.

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ON THINGS IN GENERAL.

If England was what England seems,
And not the England of our dreams,
But only putty, brass, and paint,
How quick we'd chuck her. But she ain't.

Thus Mr. Kipling in one of those great poems written ten or fifteen years ago, and disregarded by our fat and well-fed people even as the words of the Hebrew prophets were neglected, till it was too late, and the Kingdom of Israel had been eaten up by the Kings of Babylon, and of Assyria, and had been finally laid out in a quiet and orderly—and singularly German—manner under the Pax Romana.

Things are bad, very bad indeed, but not as bad as they can be. And they will have to become worse before they can be better.

As I write, Ireland is seething with rebellion. Days-old corpses are lying in the streets of dear old sleepy Dublin, because no man dare approach them to take them away for burial. Happily, one hears that among the retrieved corpses are those of certain German officers, which show something of how the rebellion was raised—and, incidentally, shows the utter ineptitude of officialdom, for I believe the Irish Police, the finest of their kind in the world, knew all about these men, and about the whole affair long enough ago, and yet officialdom refused to take strong action, and was content to wait and see.

A German fleet has bombarded the East Coast. A small enough matter in itself, but an insult to the British People, and a proof that Germany has command of the air over our seas. It is a mistake to reproach the Navy for allowing that fleet to escape, for nothing would suit the Germans better than that our Grand Fleet should be lured by such a raid into the North Sea, where our big ships could be got at by the German submarines. Better let the Germans bombard our coast all day unopposed than risk our Battle Fleet over such conditions. The point is that if we held that Dominion in the Air, which Lord Montagu suggested as the aim and the motto of that Imperial Air Service which he and the Member for East Herts advocate so earnestly in their different ways, the German sea squadrons would never dare to make such raids, because their eyes, the ubiquitous scouting Zeppelins, would be driven from the air.

Kut has fallen, after a gallant resistance, and though our loss is only some 3,000 British and some 6,000 Indian troops our loss in prestige is greater than if we had lost 50,000 in battle. Our defeat in Gallipoli was bad enough, and intelligent people who knew the truth writhed when "our great leader," Mr. Asquith, referred jauntily and fatuously to Mesopotamia as a bright spot to set off against Gallipoli. And now look at our one bright spot.

What effect are they going to have on the Muslim world, these defeats of two great British Armies by the Turks? When he thinks of the Turks beaten to their knees by a pack of Balkan brigands like the Bulgarians

and Servians, and harried by the contemptible Greeks, what conclusion is any sane man to draw when he sees the Turks victorious against England? Who is to tell the intelligent neutral of the huddled impotence of our Government, and of the intriguing, lying and slandering of politicians? Who is to explain that a Government official may be more concerned about discrediting a whole-hearted and energetic reformer in a fruitless endeavour to prevent him from getting into the House of Commons and telling the truth, than he is about winning the war and killing Huns? Who is to expose to the great world the fact that a member of a Government Advisory Committee spends his time and his much-vaunted, much-advertised, if somewhat problematical, intellect, in writing abusive anti-reform lampoons to bolster up Government officials who have failed in their allotted task, instead of setting to work to put our aircraft production on an efficient footing, as is his duty.

THE ONE BRIGHT SPOT.

As showing how much of the truth our politicians speak—whether they know the truth or not—here is an extract from a letter written sixteen months ago from Mr. Asquith's one bright spot, Mesopotamia. It is dated January 26th, 1915. The writer was killed in action, poor lad, a few weeks afterwards, so he cannot get into trouble for writing it, and I am prepared to take the risk, for the sake of the truth.

"This campaign must have established a record in time wasted in the troops being mucked about for damn all. On January 1st the Battalion marched out to attack the enemy, but he was somewhere else, or else the troops we were going to succour, the —rd Feet among others, had mistaken cranes for Arabs. The —rd Feet were properly had for mugs. It was very funny. This splendid regiment, with the rest of this brigade, had not a show till then. They had been at the bar at F—all the time, so naturally they were positively thirsting for blood. When they did reach the scene of operations it was only because of a 'misunderstanding' on the part of the Staff. The G.O.C. got wind somehow that K— was being heavily attacked, and sent up the —rd and a N.I. Regiment to our help. Of course, it was all rot. We were not being attacked at all. Never have been so far. The two regiments were only warned at 6 a.m., and they started at 9 a.m. Naturally, they arrived in the evening post haste, hurried off the boat frightfully excited, asking, 'Where are the enemy? Lead us to them,' etc., etc. Rumour says they charged magazines before leaving the boat! The only news of the enemy then was that there were some a few miles up river. They snipe at lot at night, or did.

"The next day the new arrivals were told that they were to go out to meet the enemy in an 'encounter battle.' We were left behind in camp as reserve. We old campaigners (Z— and K—), who had learnt

what a ragtime show this campaign is, and were bored with it, were frightfully pleased, and shouted, 'You can do it,' when we learnt the news.

"Lots of times we have been out to attack the enemy, or the enemy is said by the Staff to be coming to attack us with hordes of men and guns galore, so we had got rather tired of shows like that.

"This is a funny show all round. I wish to goodness there was an aeroplane in it. Every pound it weighed would be the equivalent of ten men in getting definite and accurate news of the Turks and Arabs."

That was Mr. Asquith's "bright spot" at the beginning of 1915. Since then the force has had a few aeroplanes, but it has also had hospital scandals, while a dozen huge ships fitted with the latest surgical appliances, with Canadian motor ambulances complete with X-ray outfits rotting on their decks in the salt sea air, with a thousand nurses or so, and four hundred doctors on board, lay in harbour for twelve solid weeks without a patient on board, not a week's steaming from the mouth of the Tigris, and while a couple of hundred fast motor-boats, perfectly useless for sea work, but admirably suited for towing hospital barges on rivers, lay, and still lie, rusting along our East Coast. Our one bright spot! Ye Gods!

WHAT THE PEOPLE FEEL.

Men so widely different in temperament as Lord Montagu, Mr. Robert Verburgh, and Mr. Pemberton-Billing, have said in so many words that this Government has betrayed its trust, and that any Government or no Government would be better because it could not be worse. And their audiences, composed of the best middle-class people, agreed cordially.

The decorous applause of the Navy Leaguers at the Queen's Hall was no less heartfelt than the enthusiastic cheers of Mr. Pemberton-Billing's thousands at the Albert Hall. And the approval of the eminently respectable peers and politicians on the platform behind Lord Montagu was no less sincere than that of the political rebels behind the Member for East Herts.

Mr. Billing is supposed to have captured the sym-

pathy of the British working man and the great unwashed generally. That is true to a point, but he has captured still more the intelligence of the well-educated middle-class. Many British workmen are against him because they have read and stupidly believe the lampoons in the "Chronicle," on the strength of the name of a Government Advisor being used as a peg on which to hang them. But at the Albert Hall one noted that several of his audience appeared to be in the habit of washing quite frequently, and when two ill-advised interrupters got themselves pitched out, the men who fell upon them with enthusiasm, and who came back to their seats pulling down their cuffs and breathing through their noses, were obviously well-to-do business men, and their pleased expressions indicated plainly that they felt that they had just let off a little of the steam they would have liked to have exhausted fully on the persons of the Cabinet itself.

That is how the country feels to-day, and Mr. Asquith and his colleagues will do well to take note of it. As my dead young friend's letter was a warning of the rottenness beneath the "one bright spot" in Mesopotamia, so these notes may serve to warn those in high places how the country really feels. The Turks can never have rejoiced over the surrender of Kut as the British Nation would rejoice over the surrender of Mr. Asquith and his colleagues in the present mis-Government to the wishes to the British People with which they have been besieged so long—the wishes that they will hand the control of the country and of the war to somebody, anybody, nobody, so long as they themselves cease to misdirect.

The "Imperial Nine," suggested by Mr. Pemberton-Billing is a truly great idea. To end this war successfully we need an Imperial Government of men, not a kind of parish council of shop-keepers and pettifogging lawyers. The present political gang will never give such a Council to the Empire, but the Empire may yet give it to itself. Or the King might call such a Council together, and commit the Empire into its hands. By doing so he would earn the eternal gratitude of the British Race throughout the world.—C. G. G.

ON SOME RECENT EVENTS.

Recent happenings at home and abroad suggest that brief comments thereon from a practical point of view may not be unacceptable. There seem to be opportunities, for example, for the use of aircraft in suppressing the remains of the Irish Rebellion. No one who knows the history of Ireland can reasonably expect any Irishman to be deeply in love with the British Empire as such, but equally no one who understands the geographical position of Ireland can expect Ireland to be anything except an industrial and commercial appendage of England, even with political self-government, such as South Africa, Australia, and Canada already have. Therefore any Irishman who creates a disturbance with the crazy idea of making Ireland independent of England is not only a fool, but a traitor to Ireland and a danger to the welfare of all Irishmen. Self-interest, not sentiment, must always tie Ireland to England.

Therefore the sooner this rebellion is utterly stamped out the better. It will take some months to hunt down the last of the rebels, for the Irish are fairly pertinacious, and much could be done in this way with armoured cars, with aeroplanes, or the little S.S. airships as scouts. The cars, with three-pounders in their bows, would soon blow to bits any mud and brick stronghold the rebels might hold out in the country, and the aircraft could bomb the rebels or machine-gun them as they fled across country.

Presumably it never struck any of our military geniuses that a couple of S.S.'s (commonly known as "Blimps")

could have bombed the rebels in Stephen's Green with much success. Even a kite-balloon skilfully sent up from a suitable spot and drifted across the Green could have done much execution. It would only have been necessary to armour the basket against rifle-fire, for it would take thousands of bullets to damage the envelope enough to sink it. It is hardly likely either that anyone thought of using those armoured cars to blow in doorways and barriers in the Dublin street fighting. Nor is it likely that the infantry who lost so heavily were provided with steel helmets and shields, as they should have been. Such notions would be far too modern. The old-fashioned idea of hurling naked infantry against a barricade is so much more warlike than that of pushing a barricade down with an armoured traction engine and rushing the gap with steel-clad men on foot.

One suggests, therefore, that there are still opportunities in Ireland for the Flying Services to give young officers a taste of active service of a mild kind, by way of training for real war. In this way numerous R.N.A.S. officers who are doing nothing in particular could be usefully employed, and they could use up on this work a number of slow machines which are not fit for active service on the Continent, or even against the Turks.

Incidentally, in dealing with these rebels, of course, this Government will do the wrong thing and try to placate the Irish people by treating them leniently. What is wanted is another Strafford, with his motto "Thorough."

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Probably most of the prisoners will be released. The proper thing to do is to hang the lot, starting with the man Casement. The right place to hang him is off the O'Connell Monument in Sackville Street. The great Daniel, the real liberator of the Irish people, would have highly approved Casement's execution, and would have been pleased to be his executioner. One fears, however, that the Unseen Hand will again intervene, and that Casement will be nominally imprisoned. One of the rebel leaders, the Countess Markievich, to whom reference has been made in some papers, is not a Russian, but a Miss Gore-Booth from Sligo, and the wife of a Polish revolutionary, who was himself a fugitive from justice for raising trouble against the country which we now call "our great Ally," and which some few years ago was only known to us as the oppressor of reformers. She is a charming, cultured, but utterly unbalanced woman, who has been plotting against England for ten or fifteen years, to my knowledge. The right place for her is an asylum for criminal lunatics. The rest of the rebels should be shot on sight, or hanged publicly if caught alive. Then the honest, hardworking Irish farmer who has bought his bit of land under the Land Act could go about his work in peace. And he constitutes the bulk of the Irish people. His political representative is Mr. Redmond, not Larkin, or Connolly, or Casement.

Rebel-hunting by armoured cars and aircraft would be rather sport. It is commended to the Authorities.

WHY THE ZEPPELINS CAME.

Much has been written of the work of Zeppelins in guiding the German sea squadron which bombarded Lowestoft, and the naval "experts" of the daily Press seem to have awakened at last to the fact that Count Zeppelin did not design his airship for the sole and express purpose of massacring babes and sucklings, as most papers seem to think. The "experts" seem, however, to have missed one point about the Zeppelin which visited "Kent and Essex" on Tuesday of last week.

That ship dropped very few bombs and flew very high. She was, I am told by those who have every reason to know, at one time a great deal nearer to 15,000 feet high than to 10,000 feet. The assumption, therefore, is that she came over on purpose to observe whether our gun and searchlight defences have improved. To keep out of danger she would naturally be as high as possible, and to that end would carry a minimum crew, with as few bombs and as little fuel and armament as possible.

The fact of such a reconnaissance being made points to preparations for a raid on a very big scale on London in the near future. Personally, I am inclined to think it will be made by aeroplanes on a bright moonlight night, rather than by airships. The Provinces are more likely to suffer from Zeppelin raids, because the Germans probably assume that provincial cities are less protected.

If such a raid takes place we shall at last realise the folly of not providing an adequate force of big, fast, gun-carrying aeroplanes, equipped with search-lights, and capable of doing patrol work at night.

THE SUBMARINE MENACE.

The amount of damage to merchant shipping admitted officially to have been done by enemy submarines indicates fairly clearly what we are suffering for not paying proper attention to the development of aeroplanes for sea work.

Admitting that seaplanes cannot be handled in really big seas, it seems that even existing seaplanes can operate on any sea in which a submarine can be used with any certainty of success, for I am told that a really bad sea blinds a periscope with spray. In any case, a properly organised patrol of all the main trade routes by seaplane carriers would go far towards reducing the submarine danger. It does not appear from published results that

seaplanes have done anything whatever to destroy submarines out at sea.

By keeping all our shipping to very closely defined lanes, and by patrolling those lanes thoroughly with seaplanes, it would be quite possible to stop the usual method of submarine surface attack by gun, and by blowing up a ship after boarding. The submarines could, at any rate, be kept below the surface, and if thus confined to torpedo attack alone they would be much less harmful.

It is, however, quite possible to launch aeroplanes from a ship, and for the aeroplanes to return to a ship in comparatively bad weather. No serious experiments were tried in this direction before the war, but such a method of operation is possible, and the Admiralty Air Department is greatly to blame for not developing it.

The Royal Naval Air Service might have earned the undying gratitude of the whole of Great Britain if it had devoted its energy entirely to anti-submarine operations alone, and had left all land operations to their legitimate owners, the Army: not to mention the energy it expended on side-shows such as armoured cars, motor-boats, and so forth.

KUT.

The surrender of Kut is another part of the price we are paying for not taking Air Power seriously. It appears that the surrender was entirely due to lack of food and munitions. It is fairly certain that a force of a few dozen seaplanes could have kept the place supplied indefinitely. Throughout the siege, after the Turks captured the landing-ground, the seaplanes, under Major Gordon, R.M.L.I., seem to have been keeping up constant communications, and even the General Officers Commanding the besieged and the relief forces seem to have travelled to and fro by seaplane to confer together. Therefore it seems clear that a sufficiency of seaplanes could have kept the beleaguered force going till such time as the floods subsided and the relief force could have attacked on a broader and less easily defended front.

Instead of sending first-class aeroplanes to Mesopotamia, we seem to have, as usual, given way to the fatal English vice of under-rating our enemy, and to have sent "any old thing" in the way of aeroplanes. It is a trifle humiliating to find the Turkish communiqué telling of "old British machines" being shot down one after the other, and there is no more reason to doubt the statement than there was reason for sending machines which were unfit for the work they had to do.

LANDING GROUND LIGHTS.

A question by Col. Yate in the House of Commons, reported elsewhere, indicates that the lighting of landing grounds is at last attracting attention, though Col. Yate seems to have gone on rather the wrong tack. It would be a good idea to take power for landing lights from the local power-station, but for the fact that the said station might be bombed, and the power thus cut off. Therefore there is excellent reason for using portable electric power plants, which, being on the landing ground itself, are much less likely to be hit.

The most foolish, wasteful, and dangerous method of lighting is the ordinary open petrol flare. It merely attracts airships, and the result naturally is that the skipper of any ship within sight proceeds to bomb the whole district round, in the hopes of hitting the sheds. Already certain districts have experienced this, and the inhabitants resent the system fiercely—in which attitude they deserve every sympathy.

The petrol flare system is sloppy, unsoldierly, and unscientific, it shows lack of ingenuity, lack of initiative, lack of comprehension, lack of knowledge of aviation, lack of brain-power, and a general state of huddled impotence on the part of the O.C. who employs it which is worthy of a Government Department, but is certainly unworthy of the Flying Services.—C. G. G.



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AIRCRAFT IN THE HOUSE.

On April 25th, 1916, **Colonel Yate** asked the Under-Secretary of State for War if he can state the quantity of petrol consumed during the last Zeppelin raids for the purpose of flares for lighting up Royal Flying Corps landing grounds; whether the electric power adjacent to the various aerodromes can be utilised for illuminating night landing grounds; whether special petrol-driven electric searchlights have been provided at the different aerodromes in close proximity to electric power stations which have not been utilised; and whether steps will now be taken to put a stop to the waste in this respect that occurs on the occasion of each raid and also during practice night flights?

Mr. Tennant in a written answer said: The information asked for in the first part of the question would have to be specially ascertained, and I hardly think this is necessary. Electric power adjacent to the aerodrome could be employed in some cases, but petrol flares are more efficient and are preferred by the pilots. Portable lights are in use at some places round London, but it is not intended to make any general alteration in the present arrangements.

[Portable electric light sets seem to be very necessary in view of the fact that power stations "in close proximity" to aerodromes are very likely to be bombed.]

Mr. Vincent Kennedy asked the Under-Secretary of State for War whether the Admiralty have forwarded a suggestion embodying plans to save life in towns in the event of Zeppelin raids prepared by Mr. William Lee, Entaveeny, county Cavan, to his Department; has this scheme been considered, and with what result; will he state how many plans of a similar nature have reached his Department; how many have been adopted; and if any remuneration has been paid for such schemes?

Mr. Tennant in a written answer said: Search has been made, but no trace can be found of any letter from Mr. William Lee. Hundreds of suggestions in connection with Zeppelin raids have been received, and careful consideration has been given in each case; but in no case has any remuneration been paid to the writer.

AIRCRAFT INSURANCE SCHEME (RATES).

On April 27th, 1916, **Mr. Hogge** asked the President of the Board of Trade whether, when the anti-aircraft, etc., insurance scheme was promulgated, the rates were fixed on a national basis or on the basis that only those would insure who were then considered to be within vulnerable areas; whether he is aware that in Edinburgh, whereas 5s. per cent. is the rate for houses situated above retail shops, the fire insurance rate is only 1s. 9d. per cent.; whether he is aware that houses in Edinburgh and elsewhere in Scotland are more substantial structures than in England; and whether, if the Government are unwilling to pay compensation for damaged property in areas where the only defence is an insurance policy, he is prepared either to quote a lower national rate or give lower or equal rates to fire insurance policies in different areas?

Mr. Runciman: The rates charged under the Government aircraft insurance scheme were fixed by the Expert Committee which framed the scheme, and their views on the subject generally, and in particular in relation to fire rates, are fully set out in their Report, of which I am sending my hon. Friend a copy. I am afraid it will not be possible to lower the rates or to differentiate between England and Scotland.

Mr. Hogge: If it is the case that the Committee did consider every consideration, did they take into account the substantial point of my question, namely, that buildings in Scotland are constructed quite differently owing to the nature of the stone available in Scotland, from the buildings in this country, and the damage, therefore, being very much less, they are entitled to a less rate?

Mr. Runciman: I am unable to say whether or not that consideration was placed before the Committee, but I am afraid if it was it would not be sufficient to induce them to adopt a different rate as between Scotland and England.

Mr. Hogge: Can the right hon. Gentleman tell me whether it is still true that with regard to Edinburgh the only defence against aircraft is an insurance policy?

A BRITISH HEIGHT RECORD.

On April 26th Mr. Harry Hawker put the British height record up to 7,200 metres (24,408 ft.) on a standard type Sopwith fighting biplane at Brooklands. Mr. Hawker already held the British height record from June, 1915, when he flew to 18,393 ft.

The flight mentioned above did not constitute a world's record, as alleged by a number of daily newspapers. It is, in fact, held by Herr Oelerich, who reached 25,750 ft. in 1914 on a D.F.W. However, it appears that the extra 1,000 ft. or so may still be reached by Mr. Hawker. This machine could probably do it easily with special wings and propeller.

Mr. Deputy-Speaker: That is a question that does not arise.

Mr. Hogge: It was put into the question to elicit the fact as to whether or not any guns have been placed for the defence of Edinburgh.

Mr. Deputy-Speaker: That ought to have been put in the question in that form.

Mr. Hogge: It passed the Table. The President of the Board of Trade did not answer it.

ENEMY RAIDS (EAST AND SOUTH-EAST COASTS).

Mr. Butcher (by Private Notice) asked the Under-Secretary of State for War whether he can give any information as to the recent air raids on the East and South-East Coasts beyond what has already been communicated to the public?

Mr. Tennant: On the night of April 24th-25th a raid was attempted which resulted in one casualty. It was otherwise abortive. On the night of April 25th-26th at least three airships are believed to have crossed the coast. They went to an East Coast port and to London, and were beaten off by gun-fire in each case. Very little damage was done to property, and there were no casualties. There was another endeavour made last night on the coast of Kent, but it was beaten off by gun-fire.

ENEMY RAIDS (DEFENCE OF MANCHESTER).

On April 27th, 1916, **Sir John Randles** asked the Under-Secretary of State for War whether he has been able to assure the Lord Mayor and citizens of Manchester, in response to their representations, that adequate arrangements are being made for the defence of that city against hostile aircraft?

Mr. Tennant in a written answer said: The answer is in the affirmative.

[Manchester will be pleased—if it believes Mr. Tennant.]

THE PROMISED AIR DEBATE.

At the close of the debate on the Military Service Bill **The Prime Minister** said: On Tuesday next we shall take the Orders which are upon the Paper to-day, and I think some of my hon. Friends will be glad that the temporary removal of this Bill will give an opportunity for Debate, for which they have been asking for a long time, on the Air Question. I think we might very well have an opportunity for that on Wednesday.

Captain Amery: Do I understand the Bill is dissolved in air?

Mr. Pemberton-Billing: The Prime Minister has very kindly offered a day next week for a Debate on the Air Service. I do not think any critic of mine will accuse me of not being interested in that Service, but there is something which is even more important than that matter, and that is the subject which we have been debating for the last few days, and I am quite willing—and I am quite sure that all those people in the country, deeply as they feel upon the question of the Air Service, will be willing—that Wednesday should not be devoted to the Air Debate unless some satisfactory pronouncement is made by the Government on the question of recruiting.

I think a pronouncement from the Prime Minister that we are in a position to keep our obligations to our Allies is even of greater importance than a Debate on the Air Service, and representing, as I feel I do, the Air Service in this House I am anxious that the question of the Air Service should not be drawn across the path or used as a blanket to hush up or to hide or to postpone this very important question which is now being set aside. The Cabinet was united on the Bill which was placed on the Table, and now that it has been withdrawn one can only assume that there is to be a fresh crisis on recruiting.

I think it is my duty, as I have been agitating for a Debate on the Air Service for many weeks, to say that I personally protest against the Air Debate being drawn across a crisis of this description, and being thrown as another bone to the House to haggie over. I consider that the Air Debate should be left until the Prime Minister can make a pronouncement on this recruiting question which will not only satisfy this House, but will give confidence to the people and will have the support of the country, and also win back, if we have not already lost it, the respect of our Allies.

ANOTHER VACANCY.

There will be a contest for the parliamentary vacancy caused by the death in action of Lord Quenington, the Unionist M.P. for the Tewkesbury division of Gloucestershire. Mr. William Boosey, the chief proprietor of Messrs. Chappell and Co., the music publishers, announces that he will stand as an independent.

Mr. Boosey left London on April 28th for Gloucester and Tewkesbury, and will be actively engaged in the constituency during next week. He is a newcomer in the world of politics, and is a supporter of the forward air policy of Mr. Pemberton-Billing, M.P.

PROTECT OUR AIRMEN.

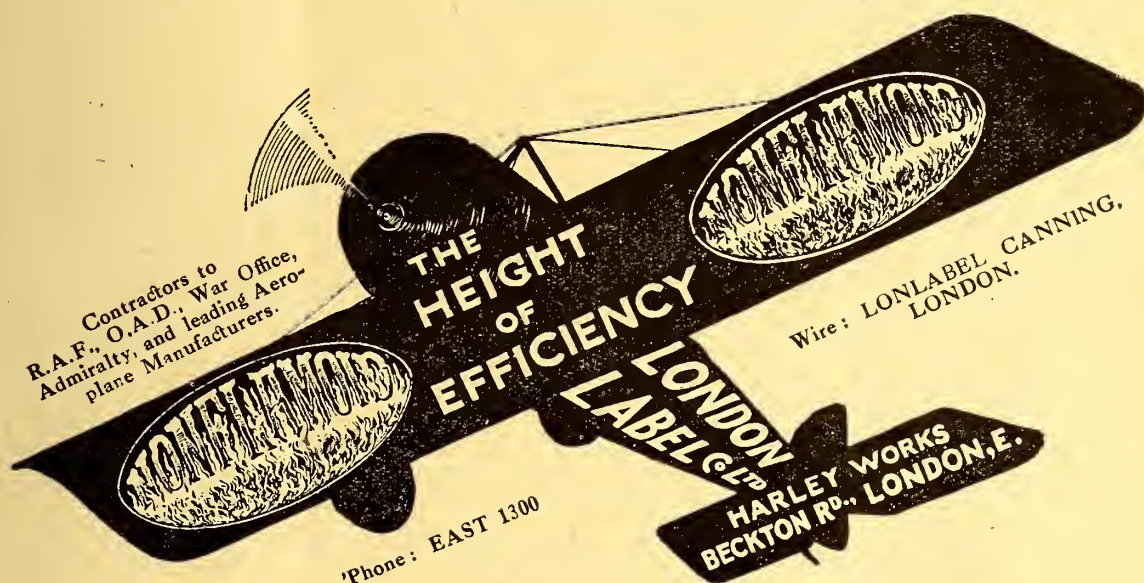
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From the "London Gazette," April 25th, 1916.

WAR OFFICE, April 25th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Comdr: Temp. Sec. Lieut. N. A. Bolton, Gen. List, from a Flying Officer, and to be temp. Capt. whilst so empld. (April 6th.)

Asst. Equipment Officers: Sec. Lieut. H. A. P. Bale, Hamps. Fortress Engrs., R.E., T.F.; Sec. Lieut. S. R. Proctor, Spec. Res. (April 13th.)

SPECIAL RESERVE OF OFFICERS.—CAVALRY.—3rd Huss. —G. H. Eastwood, from Capt. R.F.C. (Mil. Wing), to be Sec. Lieut. (on prob.) (April 26th, but with seniority as from Sept. 10th, 1914.)

* * *

From the "London Gazette" Supplement, April 26th, 1916.

WAR OFFICE, April 26th.

REGULAR FORCES.—COMMANDS AND STAFF.—ATTACHED TO HEADQUARTER UNITS.—Brig.-Comdr.: Temp. Lieut.-Col. Duncan Le G. Pitcher, 39th Cent. Ind. Horse, I.A., from a Wing Comdr., R.F.C., and to be temp. Brig.-Gen. while so empld. (April 1st.)

ESTABLISHMENTS.—R.F.C.—Wing Comdr.: Capt. (temp. Lieut.-Col.) C. G. Hoare, 39th Horse, I.A., from Asst. Comdt. Central Flying School, and to retain his temp. rank while so empld. (April 2nd.)

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lieut. (on prob.) S. R. Proctor is confirmed in rank; J. E. Appleyard to be Sec. Lieut. (on prob.) (April 15th, 1916.)

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From the "London Gazette" Supplement, April 27th, 1916.

WAR OFFICE, April 27th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Equipment Officer: Sec. Lieut. A. Heywood, Spec. Res., from an Asst. Equipment Officer, and to be temp. Capt. whilst so employed. (April 2nd.)

INFANTRY.—Conn. Rang.: Lieut. W. A. G. Bellew, from R.F.C., S.R., to be Sec. Lieut., and to retain his higher rank and seny. in his present unit until ordered to join a Reg. Unit (April 28th, with seny. as from March 19th.)

MEMORANDUM.—(April 8th). Sgt. D. P. Geddes, from R.F.C., to be temp. 2nd Lieut. for duty with Mil. Wing of that Corps. (April 7th.)

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—The following Sec. Lieuts. (on prob.) relinquish their commns.: J. J. Bland (April 1st): A. G. Grant. (April 12th.)

TERRITORIAL FORCE.—R. W. SURREY R.—Capt. Leonard S. B. Hull is seconded for duty with the R.F.C.; March 15th, 1916.

* * *

From the "London Gazette," April 28th, 1916.

ADMIRALTY, April 25th.

The following Proby. Flight Sub-Lieuts. have been confirmed as Flight Sub-Lieuts. for temp. service:—I. G. Kelly (Oct. 14th); T. R. Spence, J. W. Walton (Oct. 23rd); G. M. Kingsmill (Nov. 1st); O. M. Ayrton (Nov. 8th); W. E. McConnell (Dec. 10th); J. de Francia (Dec. 20th); E. Ball (Dec. 28th); J. Yates (Dec. 29th); T. C. Lloyd (Jan. 4th); W. J. Calderwood (Jan. 15th); C. A. Hervey (Jan. 17th); B. P. Chase, P. H. Hepburn, N. H. Fletcher (Jan. 25th); W. A. Daniell (Jan. 26th).

R.N.A.S.—Lieut.-Cdr. R. C. Hayes, R.N., and Lieut. R. S. Robinson, R.N., grade as Flight Cdrs. (April 3rd.)

WAR OFFICE, April 28th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Asst. Equipment Officers: Sec. Lieuts., Spec. Res., G. A. Curtis, R. M. J. Dumphy, W. J. Sinclair, A. F. Palmer. (April 11th); Lieut. J. A. V. Noel, R.A., and to be secd. (April 14th); Lieut. L. Findlater, 3rd Manch. R., Spec. Res., and to be secd. (April 10th).

MEMORANDUM.—To be temp. 2nd Lieut.: Sec. Lieut. N. W. Morrison, from R.F.C., Spec. Res., for duty with the Mil. Wing of that Corps; April 12th, 1916.

* * *

From the "London Gazette" Supplement, May 1st, 1916.

WAR OFFICE, May 1st.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Wing Comdrs.—From Sqdrn. Comdrs., and to be temp. Lt.-Cols. whilst so empld.:—Maj. F. W. Richey, R.A. (April 11th); Capt. (temp. Maj.) C. F. de S. Murphy, R. Berks R. (April 12th).

SQUADRON COMDRS.—From Flight Comdrs., and to be temp. Majors whilst so empld.:—Capt. R. G. D. Small, Leins. R. (April 1st); Temp. Capt. G. A. K. Lawrence, D.S.O., R.A.; Capts.:—J. E. Tennant, S. Gds.; J. B. T. Leighton, S. Gds.; R. M. Vaughan, R. Innis. Fus.; C. S. Burnett, Res. of Off. (April 2nd); Temp. Capt. A. E. G. MacCullum, Gen. List (April 14th).

FLIGHT COMDRS.—From Flying Officers, and to be temp. Capts whilst so employed:—Lt. N. M. Martin, 38th Cent. Ind. Horse, I.A.; Temp. Lieut. N. C. Samson, Gen. List; Lt. A. M. Wynne, S.R.; Temp. Sec. Lt. O. S. Mosley-Leigh, Gen. List; Sec. Lt.

J. H. Herring, S.R. (April 2nd); Sec. Lieut. C. C. Miles, S.R. (April 13th).

EQUIPMENT OFFICERS.—From Asst. Equipment Officers, and to be temp. Capts. whilst so employed:—Temp. Lt. A. Cleghorn, R.E., T.F.; Sec. Lt. S. L. Dashwood, R.E., T.F.; Sec. Lt. S. C. Callaghan, Spec. Res.; Sec. Lt. F. Shumaker, Spec. Res. (April 14th).

FLYING OFFICERS.—Temp. Capt. F. D. Berridge, Dorset R., and to be transferred to Gen. List; Lt. C. L. Bath, Canadian Motor Machine Gun Serv.; Lt. T. Mc. D. Hawker, R. Ir. Fus., S.R., and to be secd.; Temp. Sec. Lt. G. H. Wilkinson, E. Kent R., and to be transferred to Gen. List; Temp. Sec. Lieut. E. C. Winkley, E. Surr. R., and to be transferred to Gen. List; Sec. Lt. E. J. Watkins, S.R.; Sec. Lieut. C. J. Creery, S.R. (April 11th).

That portion of the notification in "Gazette" of February 4th, 1916, which relates to Lt. G. J. L. Welsford, Middx. R., and Sec. Lt. H. F. C. Cannell, Gen. List, is cancelled.

The appts. of the follg. Officers are as now shown, and not as stated in previous "Gazettes":—

Lt. A. G. R. Garrod, Leic. R., S.R., Flying Officer (Observer) (Oct. 21st, 1915); Temp. Capt. E. C. Perrin, Ches R., T.F., Flying Officer (Observer) (Oct. 21st); Lt. C. G. Burge, York and Lancs R., Flying Officer (Observer) (Nov. 11th); Temp. Sec. Lt. W. H. Hargreaves, Gen. List, Flying Officer (Observer) (Nov. 11th); Temp. Sec. Lt. J. McArthur, Gen. List, Flying Officer (Observer) (Nov. 11th); Sec. Lt. A. W. Davies, R.A., Flying Officer (Observer) (Nov. 22nd); Lt. H. B. Davey, N. Staff. R., T.F., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. B. C. Rice, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lieut. R. Chadwick, Gen. List, Flying Officer (Observer) (Nov. 22nd); Lt. H. Clements-Finnerty, 17th Lrs., Flying Officer (Observer) (Nov. 22nd), Flying Officer (March 23rd, 1916); Temp. Sec. Lieut. C. T. Cleaver, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lieut. C. F. Portal, Motor Cyclist Section, R.E., S.R., Flying Officer (Observer) (Nov. 22nd); Lt. C. G. Beatson, Middx. R., S.R., Flying Officer (Observer) (Nov. 22nd); Temp. Lieut. G. S. Inglis, Gen. List, Flying Officer (Observer) (Nov. 22nd); Sec. Lt. T. Henderson, Tyne Electrical Eng., R.E., T.F., Flying Officer (Observer) (Nov. 22nd); Sec. Lt. R. Corbett, W. Som. Yeo., T.F., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. A. M. Vaucour, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. R. F. Wills, Gen. List, Flying Officer (Observer) (Nov. 22nd); Sec. Lt. K. B. Lloyd, R. W. Fus., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. H. C. Evans, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. H. E. Fletcher, Gen. List, Flying Officer (Observer) (Nov. 22nd); Sec. Lt. J. E. Catherall, R. War. R., Flying Officer (Observer) (Nov. 22nd); Sec. Lt. F. R. Hardie, 3rd Hrs., Flying Officer (Observer) (Nov. 22nd), Flying Officer (March 31st, 1916); Sec. Lt. L. A. K. Butt, S. Staff. R., Flying Officer (Observer) (Nov. 22nd); Sec. Lt. P. Anderson, Arg. and Suth. Highrs., Flying Officer (Observer) (Nov. 22nd), Flying Officer (Feb. 8th); Temp. Lt. M. Jacks, Lond. R., T.F., Flying Officer (Observer) (Nov. 22nd); Sec. Lt. R. Whitaker, Rif. Brig., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. T. McK. Hughes, K.R. Rif. C., Flying Officer (Observer) (Nov. 22nd); Lt. L. W. W. Lees, Antrim R.G.A., S.R., Flying Officer (Observer) (Nov. 22nd); Lt. J. S. B. MacPherson, Canadian Art., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. K. A. Creery, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Lt. J. C. Russell, R.E., Flying Officer (Observer) (Nov. 22nd), Flying Officer (April 1st); Temp. Sec. Lt. G. W. M. Green, Army Cyclist Corps, Flying Officer (Observer) (Nov. 22nd); Temp. Lt. C. Porri, Gen. List, Flying Officer (Observer) (Nov. 22nd); Lt. H. French, W. York. R., S.R., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. H. J. Payn, Motor Cyclist Section, R.E., S.R., Flying Officer (Observer) (Nov. 22nd), Flying Officer (March 25th); Lt. M. W. Thomas, R.A., Flying Officer (Observer) (Nov. 22nd); Capt. A. V. Holt, R. Highrs., Flying Officer (Observer) (Nov. 22nd); Lt. A. McR. Moffat, Arg. and Suth. Highrs., T.F., Flying Officer (Observer) (Nov. 22nd); Temp. Lt. O. I. Preston, Notts. and Derby R., T.F., Flying Officer (Observer) (Nov. 22nd); Lt. C. C. Haynes, Devon R., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. S. T. Welch, Gen. List, Flying Officer (Observer) (Nov. 22nd), Flying Officer (March 14th); Temp. Sec. Lt. G. A. F. Layton, Gen. List, Flying Officer (Observer) (Nov. 22nd); Sec. Lt. A. D. Bell-Irving, Gord. Highrs., Spec. Res., Flying Officer (Observer) (Nov. 22nd); Lt. J. H. C. Minchin, Sco. Rif., Flying Officer (Observer) (Nov. 22nd); Sec. Lt. A. H. Bottrell, R. War. R., Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. K. F. Balmain, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. C. C. Russell, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. S. G. Ridley, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. A. L. Findlay, Gen. List, Flying Officer (Observer) (Nov. 22nd), Flying Officer (March 7th); Temp. Sec. Lt. A. Murray, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. A. J. Insall, Gen. List, Flying Officer (Observer) (Nov. 22nd); Temp. Sec. Lt. L. C. Drenon, Gen. List,

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Railway Station about 30 yards from a signal-box. The pilot was dead when taken from the machine, which fell with such force that part of it, which buried itself in the ground, broke a water pipe laid 18 inches beneath the surface. Sub-Lieut. Liddle, who was 21 years old, was a native of Grimsby, Ontario.

It is reported that the deceased aviator came to grief while attempting to loop the loop.

* * *

The Secretary of the Admiralty announced the following casualties on April 28th:—

SERIOUSLY WOUNDED.—April 25th.—Cleghorn, Flight Sub-Lieut. William F., R.N.

SERIOUSLY INJURED.—April 25th.—Woolley, Flight Sub-Lieut. Sidney J., R.N.

* * *

Two fatal accidents to Service aviators were inquired into on April 25th at the Royal Naval Hospital, Haslar, by the county coroner. In one case the victim was Flight Sub-Lieut. Arthur Connorton Saw. In the other case, Lieut. Warren Colclough Pemberton, R.F.C., died at the Naval Hospital from shock following extensive burns and fractured thigh.

A verdict of accidental death was returned in each case.

Flight Sub-Lieut. Saw, who was 34 years old, was a son of Mr. and Mrs. Saw, of 17, Glenluce Road, Blackheath. He was educated at Blackheath School and in the training ship "Worcester." Before the war he was a navigating officer (first officer) in the Eastern Telegraph Company's service and held a master's certificate. After the outbreak of war he obtained a commission in the R.N.R., and was present at the bombardment and taking of Duala. At the beginning of 1915 he joined the Royal Naval Air Service and became an experienced pilot. In October last he married Harvey, daughter of Mr. and Mrs. MacLennan, of Grainbank, Kirkwall.

* * *

The following communiqué was issued by the Secretary of the Admiralty at 12.10 a.m. on April 26th:—

During the operations against the German battle cruiser squadron which appeared off the East Coast on the morning of the 25th inst., two Zeppelins were pursued by naval land machines over sixty miles out to sea. Bombs and darts were dropped, but apparently without serious effect.

An aeroplane and a seaplane attacked the German ships off Lowestoft, dropping heavy bombs.

Four enemy submarines were also attacked by bombs.

One seaplane came under heavy fire from the hostile fleet, but the pilot, although seriously wounded, succeeded in bringing his machine safely back to land.

It is regretted that one pilot is reported missing. He ascended during the course of the Zeppelin raid earlier in the morning, and appears from reports to have attacked a Zeppelin off Lowestoft at about 1.5 a.m. He has not been heard of since.

[This officer was, apparently, picked up by a Dutch boat on April 27th.]

* * *

It is reported that on April 27th Flight Sub-Lieut. Beare, R.N., was picked up by a Dutch fishing-boat, on a seaplane, forty miles from the coast. He was taken into Scheveningen, where he reported that he had come down for lack of petrol and had drifted for thirty hours.

The Dutch authorities have released the pilot, as he was picked up outside territorial waters. The machine will be detained until after the war.

This was doubtless the officer reported missing from Lowestoft in the Admiralty communiqué of April 26th.

* * *

It is reported that early in the morning of April 24th the Dutch s.s. "Berkelstroom" was overhauled by the German submarine U.B.18, accompanied by another submarine, and the crew taken in tow in their boats with a view to the sinking of the steamer. While the submarines were busy shelling the steamer a British seaplane happened along and started shelling or bombing them. The submarines submerged, nearly dragging the boats with them, and the crew of the seaplane came down and conferred with the skipper of the steamer. After the seaplane's departure one of the submarines returned to the surface and completed the destruction of the "Berkelstroom." The crew were ultimately rescued by a British patrol boat.

This is a useful lesson in what might have been done if the R.N.A.S. had been properly handled, organised, and equipped. An adequate system of seaplane patrols could make submarine work of this nature impossible.

* * *

An Order in Council published in the "London Gazette" of January 27th makes provision for extra pay to officers and men, whether belonging to the Royal Naval Air Service or not, who may be employed by the Admiralty as observers in aircraft. Trained observers, if commissioned officers and midshipmen, when actually detailed as observers are to receive 5s. a day continu-

ously; warrant officers, 3s. a day for days of ascent only; petty officers and men, 2s. a day for days of ascent only. These rates are to be issued continuously to warrant officers, petty officers, and men employed as observers in an area of operations.

Officers, warrant officers, petty officers, and men under training as observers will be entitled as extra pay: commissioned officers and midshipmen to 3s. a day for days of ascent only; warrant officers to 2s. a day for days of ascent only; petty officers and men to 1s. a day for days of ascent only.

Officers, warrant officers, petty officers, and men not graded in the Royal Naval Air Service when required to ascend on duty as casual observers or passengers will receive: Commissioned officers and midshipmen, 5s. for each day of ascent; warrant officers, 3s. for each day of ascent; petty officers and men, 2s. for each day of ascent.

Graded officers, warrant officers, petty officers, and men are eligible for these rates of extra pay unless entitled as qualified pilots to flying pay at higher rates.

* * *

PECK.—On April 25th, at 24, Palace Court Mansions, the wife of Flight Sub-Lieut. Hugh A. Peck, of a son.

* * *

TRAVERS—MOUNCEY.—On April 29th, at St. Peter's, Cranley Gardens, by the Rev. S. Howard Hall, cousin of the bride, assisted by the Rev. P. Shepherd Smith, brother-in-law of the bridegroom, and the Rev. H. Dann, Flight-Lieut. Benjamin Travers, Royal Naval Air Service, elder son of W. F. Travers, of Mole Cottage, West Humble, Dorking, to Violet, only child of Captain D. B. W. Mouncey, Leicestershire Regt., of 38, Elm Park Gardens, and granddaughter of the late Sir James Longden, G.C.M.G.

* * *

HALLIFAX—SOUTHEY.—On April 29th, at All Saints Church, Compton, Hants, by the Rev. George Pardoe (cousin of the bride) and Rev. C. Durham, Rector of the Parish, and Rev. H. M. St. C. Tapper, Vicar of Romsey, Hants, Flight-Lieut. Eustace de Courcy Hallifax, R.N.A.S., fourth son of the late Rear-Admiral John S. Hallifax, of Old Alresford, Hants, and Mrs. Hallifax, Kingsland House, Shawford, and Edith, elder daughter of Lieut.-Col. H. H. Southey, late 35th Scinde Horse.

* * *

SAW.—On Friday, April 21st, as a result of a seaplane accident, Flight Sub-Lieutenant Arthur Connorton Saw, R.N., dearly loved son of Samuel and Mary Meredith Saw, of 17, Glenluce Road, Blackheath, S.E., and dearly loved husband of Harvey Saw (née MacLennan), aged 34.

* * *

A marriage has been arranged, and will take place shortly at Ulverston, between Flight-Comm. James William Ogilvy Dalgleish, R.N.A.S., Lieut. R.N., only son of Captain James Ogilvy Dalgleish and of Mrs. Ogilvy Dalgleish, of Glebelands, Wokingham, and grandson of the late Captain James Ogilvy Dalgleish, R.N., of Woodburne, Fife, and Sybil Guinevere Butler, younger daughter of Myles Kennedy and of Mrs. Myles Kennedy, of Stone Cross, Ulverston.

MILITARY

The following communiqué was issued at the War Office on April 25th at 3 p.m.:—

Last night's air raid over the Norfolk and Suffolk coasts appears to have been carried out by four or five Zeppelins, only two of which made any serious attempt to penetrate inland.

About 70 bombs appear to have been dropped. One man is reported seriously injured.

No further details as to casualties are yet available.

* * *

The report of the raid on April 25th was followed by another communiqué dated April 26th, 4.25 p.m., saying:—

No fresh facts have been reported concerning the Zeppelin raid of last night.

The Thames Estuary was visited by the raiders and over 100 bombs were dropped.

Not a single casualty is to be recorded.

With reference to the raid over the Eastern Counties the previous night, the total number of bombs discovered is about 100. There was only one casualty. The damage consists of the death of one horse, the destruction of a haystack, and much broken glass.

[One suggests that the time is past when the levity of the last paragraph is a fitting method of referring to the results of an air raid. After so much experience raids should have been made impossible, and levity over the non-success of a raid strikes a jarring note when one considers that the only protection of a large portion of this country is even now moonlight, adverse weather, and insurance policies.—Ed.]

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The following communiqué was issued at the War Office on April 26th at 3.30 a.m. :—

Hostile airships raided the counties of Essex and Kent last night. Their number is uncertain, but could not have exceeded four.

The raiders were met by a brisk fire from the anti-aircraft guns and retreated after having achieved little or nothing.

* * *

The Secretary of the War Office made the following announcement at 2.15 a.m. on April 27th :—

Zeppelins were reported over the East Coast of Kent between 10.30 and 11 p.m. last night.

No reports as to their having penetrated far inland had been received up to the time of the issue of this communiqué, and as it is misty over East Kent it is probable that they turned back before midnight.

It is reported that one bomb was dropped, which fell into the sea.

* * *

G.H.Q. communiqué of April 25th says :—

Yesterday there was considerable aerial activity. 29 combats took place. One of our reconnaissances were persistently attacked. All the attacks were driven off, and two hostile machines were seen to fall to the ground in the German lines. All our machines returned safely.

* * *

G.H.Q. communiqué of April 26th, 10.30 p.m., says :—

Hostile aircraft were less active yesterday.

This morning a hostile aeroplane was brought down in our lines as a result of a fight in the air. Both pilot and observer were killed.

At 12.30 a.m. a hostile airship dropped bombs near the coast behind our lines, doing no damage.

[Compare with the French communiqué of April 26th, which says that two English soldiers were wounded.]

* * *

G.H.Q. communiqué of April 28th says :—

In the air there was considerable activity again, twenty-four combats taking place. Four of our machines attacked eight hostile machines flying in formation, and drove a wedge into the middle of them. After a fight lasting ten minutes four of the enemy's machines were driven down, one landing in a ploughed field. One of our machines was hit, but we suffered no casualties.

In another fight a hostile machine is believed to have been hit.

* * *

G.H.Q. communiqué of April 29th says :—

Yesterday the fine weather enabled much successful air work to be done.

There was a marked decrease in the number of hostile machines seen yesterday, and only four combats in the air took place. No loss on our side. To-day two German aeroplanes were brought down behind our lines.

* * *

G.H.Q. communiqué dated May 1st, 10.5 p.m., says :—

Yesterday there were seven combats in the air, in the course of which one hostile machine was driven down in the German

lines, and a second, while being pursued, got out of control and fell on the roofs of Bapaume.

* * *

The Secretary of the War Office issued, on April 25th, the following announcement, concerning the operations in Egypt :—

On April 24th eight aeroplanes took part in an attack on the enemy camp near Katia and succeeded in effecting a complete surprise. The hostile camp was completely destroyed, and the enemy suffered severe casualties from the bombs dropped and from machine-gun fire.

* * *

The communiqué issued on April 26th respecting the operations in Egypt says :—

The Turks have paid dearly for this raid (on Katia), as their losses, particularly at Duweidar, and as a result of the aeroplane attack, have been very heavy.

On April 25th hostile aeroplanes dropped bombs on Port Said. No damage or casualties have been reported.

Early on the same morning eight of our aeroplanes made a bombing attack on the Turkish force at Bir el Abd. All the machines returned safely.

Later on, an attack by British aeroplanes was made on Bir el Bayud, eight miles south of Bir el Abd. The enemy were fired on with bombs and machine-guns from a height of 400 feet with very successful results.

* * *

A communiqué issued by the War Office on April 28th says :—

An attempt, made on the night of April 24th, to send a ship with supplies to the Anglo-Indian force shut up at Kut, though carried out with the utmost gallantry, has unfortunately failed.

Our aeroplanes have discovered that the ship is aground near Magasis, about four miles east of Kut.

* * *

A telegram from Cairo, dated April 30th, issued by the War Office for publication on May 1st, says :—

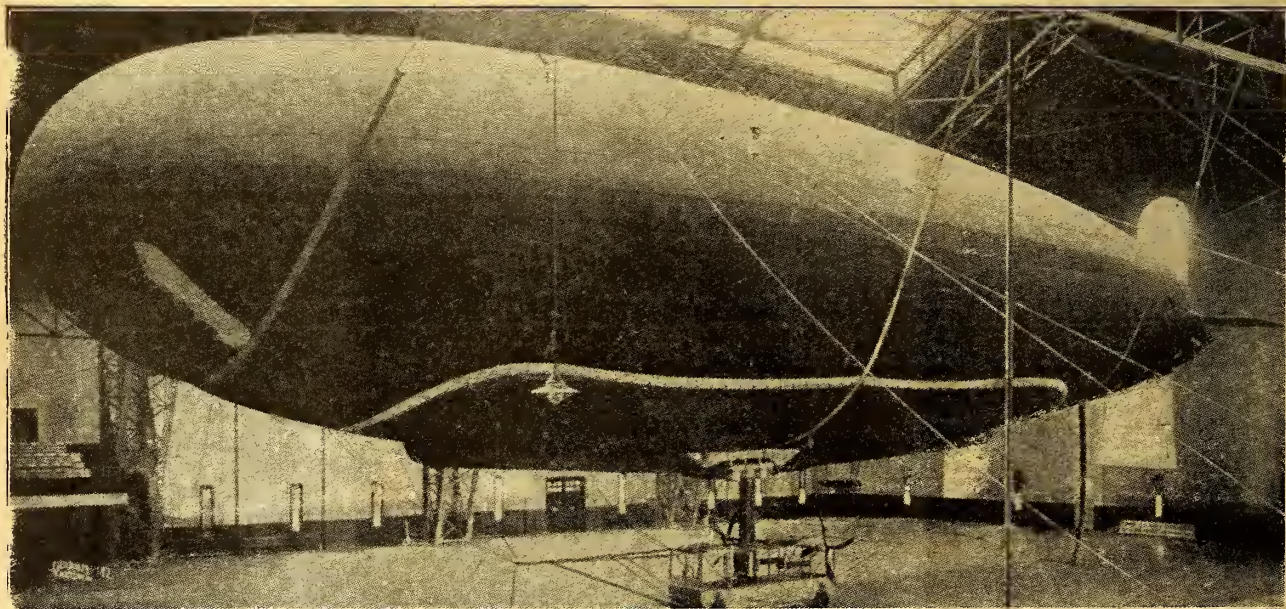
The presence of British and Egyptian troops in Kharga (400 miles south of Alexandria, and about 100 miles west of the Nile) enables reconnaissances to be carried out in all directions, and the R.F.C. makes continual flights to Dakhla (farther west, in the Libyan Desert), inflicting considerable damage on each occasion with bombs and machine-guns. No movement of the enemy from this oasis can hope to escape undetected.

* * *

The official figures (compiled in the "Times" from British French and German G.H.Q. reports) indicating aeroplanes brought down during the month of April, make interesting comparison :—

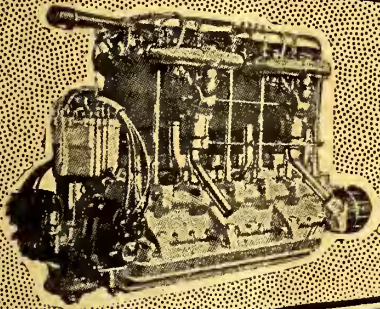
	Destroyed in Aerial fights.	Shot down	Driven down or forced to land.	Total.
British	3	1	—	4
French	10	7	3	20
German	31	6	11	48

[The cessation of the use of B.E.2cs. and of unnecessary reconnaissances over the German lines accounts for the decrease in British losses. The advent of many new "trade" built British fighting machines accounts for the increase in German losses, and this is still further increased by the great number of new French fighting machines.—Ed.]

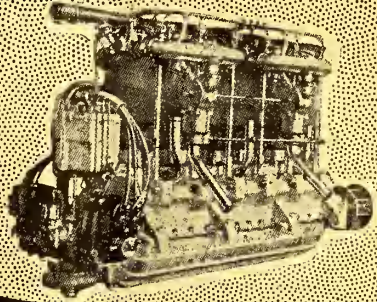


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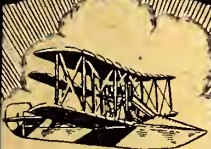
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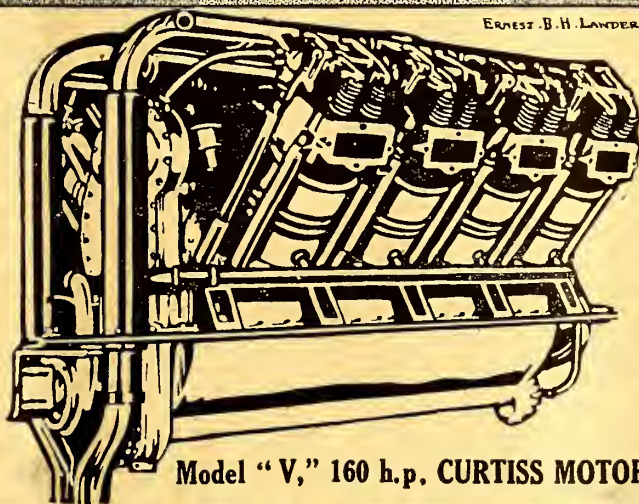
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The following appeared in the Casualty List on April 26th :—
WOUNDED.—Lieut. G. M. Moore, R. Berks Regt., attd. R.F.C.
PREVIOUSLY REPORTED MISSING, NOW REPORTED WOUNDED AND PRISONER.—Sec. Lieut. M. A. J. Orde, R.F.C.

The following appeared in the Casualty List on April 27th :—
WOUNDED.—Sec. Lieut. N. G. McNaughton, R.F.C.

The following appeared in the Casualty List on April 28th :—
PREVIOUSLY OFFICIALLY REPORTED WOUNDED AND PRISONER, NOW UNOFFICIALLY REPORTED DIED OF WOUNDS AS PRISONER.—Sec. Lieut. C. W. Palmer, R.F.C.

PREVIOUSLY OFFICIALLY REPORTED MISSING, NOW UNOFFICIALLY REPORTED WOUNDED AND PRISONER.—Sec. Lieut. J. S. Castle, R.F.C.

The following appeared in the Casualty List on April 29th :—
PREVIOUSLY REPORTED MISSING, NOW REPORTED WOUNDED AND PRISONER.—Frost, Sec. Lieut. H. G., Suffolk Regt. and R.F.C.
Grimwade, Sec. Lieut. F. N., Royal Flying Corps.

DIED OF WOUNDS.—Freeman, Sec. Lieut. J. E. H., Royal West Surrey Regt. and R.F.C.

MISSING.—Brown, Sec. Lieut. W. A. S., Argyll and Sutherland Highrs., attd. R.F.C.

Mortimer-Phelan, Sec. Lieut. W. C., R.F.C.

The following appeared in the Casualty List issued on May 1st :
PREVIOUSLY OFFICIALLY REPORTED MISSING, NOW UNOFFICIALLY REPORTED PRISONER OF WAR,
R.F.C.—Piper, 470, Cpl. N. V.

Sec. Lieut. C. W. Palmer obtained his commission in the Army in December, 1914, and was gazetted to the R.F.C. in September of last year.

DAVIES.—On Easter Sunday, April 23rd, 1916, while flying on duty, Alan Wilmot Davies, Lieut., R.F.A., and Flying Officer, R.F.C., younger son of J. H. W. Davies and Vanda Davies, 25, St. John's Park, Blackheath, S.E., aged 20 years. Funeral service St. John's Church, Blackheath, at 2.30 p.m., Friday, April 28th, and afterwards at Charlton Cemetery.

RHODES-MOORHOUSE.—In proud and loving memory of William Barnard Rhodes Rhodes-Moorhouse, V.C., Lieut., Royal Flying Corps, who died at Merville, in France, on April 27th, 1915, from wounds received while dropping bombs on Courtrai Junction the day before.

"I shall remember while the light lasts, and in the darkness I shall not forget."

FREEMAN.—On April 24th, James Edward Hutton Freeman, Sec. Lieut. Queen's, and Flying Officer, R.F.C., only son of Edith and Joseph Hutton Freeman, of The Hôlt, Walton-on-Thames, aged 19.

PEMBERTON.—On April 25th, Warren Coleclough Pemberton, Lieut., Canadian Expeditionary Force and R.F.C., second son of F. B. Pemberton, Esq., Victoria, B.C., aged 20.

ROSS-HUME.—SIEVIER.—On April 21st, at Salisbury, Major Alexander Ross-Hume, Royal Flying Corps, B.E.F., elder son of Mr. and Mrs. Ross-Hume, of Ninewells, Chirnside, Berwickshire, to Mabel Henrietta Louisa (Gogo), only daughter of Robert and Lady Mabel Sievier, of Hilmorton Manor, Rugby, and The Grange, Epsom.

KAYE—SCALES.—On April 29th, 1916, at Bolton Abbey, Yorkshire, by the Ven. Archdeacon Sandford, of Doncaster, assisted by the Rev. J. F. Macnabb, Rector of Bolton Abbey, Captain H. Gordon Kaye, K.O.Y.L.I., attached Royal Flying Corps, only son of Mr. and Mrs. J. H. Kaye, of Norwood, Huddersfield, to Winifred (Freda), elder daughter of the late Mr. W. H. Scales and Mrs. Scales, of Verwood, North Park Road, Bradford.

Second Lieut. A. Boag, London Regiment, attached the Royal Flying Corps, was killed on Saturday, April 29th, while flying between Dorney and Windsor. It is stated that something went wrong with the engine and the machine turned turtle. Lieut. Boag was thrown out, sustaining fatal injuries to the head. The body was removed to the mortuary at Eton Wick to await the inquest. The machine was completely wrecked. The deceased officer had only been attached to the R.F.C. about a fortnight, and, according to the evidence, this was his fourth flight.

Apparently considerable trouble exists in Flanders owing to the machinations of pro-German Belgians who act as spies. According to Mr. A. R. Williams of the "Evening Standard," the following incident is characteristic of the sort of thing that occurs :—

"One morning a ploughman appeared from nowhere in particular, and started work in the next field but one away [from a battery]. He went about it like an old hand, and our fellows took no notice of him. He finished that field. Behind the copse containing the battery was a big unploughed field. One evening, just as it was getting dusk, the solitary ploughman transferred himself to this and began work. When he left it was quite dark. At daybreak next morning a Taube flew right overhead and dropped smoke bombs above the battery. Our aviators went up and drove the Taube away, but one of them came rushing down and reported to the battery commander. What he had seen was this—two furrows in the adjoining field, forming a huge V, pointing exactly towards the battery. Before the day was out the battery was destroyed by a regular rain of shells from the German heavy guns. That is the sort of thing that has to be dealt with."

[Which reminds one of the remark of an R.F.C. officer, apropos this matter, that service in Flanders would not be so bad with all its discomforts if it were not for the "illicit sniping."—Ed.]

The seven-mile cross-country race held by the Aldershot Command Athletic Association on April 26th was won by Corpl. W. G. Stidolph, R.F.C., who did the best time in a field of 760 runners.

FRANCE.

The communiqué of April 25th says :—

This morning a German aeroplane dropped six bombs on Dunkirk. One woman was killed and three men were wounded. The material damage done was insignificant.

Near Vauquois an enemy aeroplane was forced to land in his lines after a fight, and was destroyed by our gun-fire.

In the region of Verdun one of our "aeroplanes de chasse" brought down a German aeroplane, which fell on Poivre Hill, 50 yards from our trenches.

A third machine, brought down by one of our pilots, fell in the Forges Wood.

Finally, a Fokker, riddled with machine-gun fire at point-blank range by one of our aviators, dived vertically in the region of Hattonchattel.

During the night of April 24th-25th one of our airships threw 10 shells of 155 mm. and 6 shells of 220 mm. on the station of Conflans.

The communiqué of April 26th says :—

This morning, at about 3 o'clock, one of our aeroplanes, armed with a gun, having been attacked by a Zeppelin off Zeebrugge, at a height of 13,000 ft., fired 19 incendiary shells at the airship. The Zeppelin appears to have been struck.

At the same time, off Ostend, another of our machines, armed with a gun, fired several shells at a German torpedo-boat, which was hit.

One of our pilots, after an aerial engagement, this morning brought down a Fokker, which fell in our lines near Hoéville, north of Lunéville. The enemy aviator, who was wounded, was taken prisoner.

The communiqué of April 27th says :—

One of our pilots brought down an enemy aeroplane, which fell headlong into the forest of Spincourt (north of Verdun).

During the daytime yesterday an enemy aeroplane, brought down by the fire of our motor-guns, fell in front of the Fort of Vaux.

During the night of April 26th-27th three of our airships carried out bombardment operations. Numerous heavy projectiles were dropped by them on the stations of Etain and Bendorf, and on the Arncliffe railway.

The same night our aeroplanes dropped 37 bombs of 120 mm. on different stations in the valley of the Aire, 25 bombs of 120 mm. on bivouacs in the valley of the Orne, six bombs of 120 mm. and two incendiary bombs on the station of Thionville, and eight bombs of 120 mm. on the station of Conflans.

The communiqué of April 28th says :—

An Aviatik which had lost its way landed last night in our lines in the environs of Rosières (Oise). Its two officers were taken prisoners.

An enemy aeroplane, shelled by our anti-aircraft guns, fell in flames in the direction of Bagatelle-Pavillon, north of the Four de Paris.

The German aeroplane which fell yesterday in the enemy lines near Vauquois, and which was destroyed by one of our guns, was brought down by Sub-Lieut. Navarre. This is the ninth enemy machine brought down by this pilot.

During the night of April 25th-26th our bombardment aeroplanes were particularly active in the region of Verdun. Fourteen bombs were dropped on the parks and bivouacs in the environs of Etain, four on bivouacs near Damvillers, six on the

Mr. ALEX. J. M. GRAY has forwarded to us a letter from an Officer in the Royal Naval Air Service, who writes:—

9/10/15

"The goggles arrived safely to-day, and I want to thank you very much indeed for them. I needed them more than anything else, and as a matter of fact I was about to get some myself, because one of ours had a nasty crash last week and would have been blinded had it not been for the Triplex Goggles."



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station of Brioules, fifteen on the station of Conflans, six on the station of Pierrepont, six on the steel works of Jœuf-Homecourt, 10 on the station of Mézières, and two on Réthel.

The same night our aviators carried out numerous bombardments in the neighbourhood of Roye. Eighteen shells were thrown on a munition depot to the south of Viller-Carbonnel, where loud explosions were observed; 12 bombs were dropped on the bridge at Biaches and 38 shells on the depots at Gremery and Grumy (north of Roye).

During the night of the 25th-26th a German airship dropped a dozen bombs in the neighbourhood of Etaples, Beutin, Paris-Plage. Two English soldiers were slightly wounded. The material damage was insignificant.

During yesterday (Thursday) our aircraft fought a number of aerial battles.

An enemy aeroplane was brought down in the region of Fromezey. Two other enemy machines, attacked by ours, were brought down seriously hit—one near Douaumont, and the other in the Bois de Montfaucon. Finally, in the regions of Nesles-Chaulnes, a Fokker, fired on by the machine-gun of a Nieuport, fell vertically into the German lines.

During the day one of our bombarding squadrons dropped 18 shells on the railway station of Lamarche, in the Woëvre.

During the night of April 27th-28th our aeroplanes bombarded the station of Audun-le-Romans, hutments near Spincourt, and the stations of Grandpré and Challanges.

* * *

The communiqué of April 30th says:—

One of our aircraft attacked two Fokkers over the German lines in the region of Roye. One of the two machines was shot down by machine-gun fire from a height of 4,500 ft. and was smashed to pieces. The other was obliged to land. Two other Fokkers were brought down by our fighting aircraft, one near Eparges, the other south of Douaumont. Five enemy aircraft dropped bombs on the region south of Verdun. Our chasing aeroplanes were sent in pursuit. Two of the enemy machines were brought down by them and a third was brought down by our special anti-aircraft guns.

An Aviatik was forced to come down in the Valley of the Biesne (Argonne), after an engagement with our chaser-planes. The enemy machine is undamaged, and the two officers who occupied it were taken prisoners.

During the night of April 28th-29th one of our air squadrons bombarded a factory in full operation at Hayange (annexed Lorraine) and bivouacs to the east of Azannes. This operation, which was carried out in spite of a very violent wind, constitutes the hundredth bombardment effected by the same squadron.

* * *

The communiqué of May 1st says:—

During the month of April our fighting aircraft which was very active, particularly in the region of Verdun, obtained important results in numerous aerial combats, in which they undoubtedly had the advantage.

Our pilots succeeded in bringing down 31 enemy aircraft. Nine of these fell in our lines, and 22 were seen by our observers falling in flames or completely smashed up in the German lines.

During the same period six French aeroplanes were worsted in fights and fell in the enemy lines.

On the night of April 29th-30th our attacking squadrons dropped a number of projectiles on the revictualling and munitions depot of Sebastopol, south of Thiaucourt, on the Etain railway line, on bivouacs near Spincourt, and on the railway stations of Apremont, Grandpré, Challange, and Vouzières.

A number of explosions are reported to have occurred on the railway lines, and several fires broke out in the course of these operations.

* * *

An official note issued on April 30th says that on April 27th a French biplane, carried away by the wind, flew a few hundred yards over Swiss territory near Beurnezein. Warned by rifle fire by the Swiss troops the aviator made a half turn. At midday another aviator, warned in time by Swiss fire, turned before reaching the frontier. The officer observer of the first biplane has been subjected to military discipline.

GERMANY.

The communiqué of April 25th says:—

A German aeroplane squadron attacked the railway and warehouse establishments of Molodetchno. Good results were obtained.

Our aviators freely bombarded numerous enemy shelters and supply stations.

An enemy aeroplane was brought down by our anti-aircraft fire near Tahure and was destroyed. Another machine was brought down to the east of the Meuse. This somersaulted to earth.

* * *

The communiqué of April 26th says:—

A German aerial squadron freely dropped bombs on the flying ground at Dvinsk.

Apart from other aerial enterprises, one of our flying squadrons dropped a large number of bombs on the French flying

ground of Brocourt, east of Clermont, and on the strongly held village of Jubécourt.

Two enemy aeroplanes were shot down in an aerial fight above Fleury (south of Douaumont) and west thereof.

* * *

The communiqué of April 27th says:—

In air fighting one enemy aeroplane was shot down near Souchez and another south of Tahure, and a third by our anti-aircraft guns south of Parroy.

The railway line in the Noblette Valley, south of Suippes, was liberally bombed by a German aeroplane squadron.

One of our airships dropped bombs on the harbour works and railway establishments of Ust Dvinsk (at the mouth of the Dvina).

* * *

The communiqué of April 28th says:—

Western Front.—Two enemy aeroplanes came down, after battles in the air, west of the Meuse—one over Bethelainville and a second near Very. A third machine was brought down by our anti-aircraft guns near Frapelle, east of St. Dié. A German squadron dropped numerous bombs on the barracks and railway station at St. Méneould.

Eastern Front.—The railway establishments and magazines of Reshitza (50 miles east of the Dvina) were bombarded by one of our airships. Several aerodromes were attacked by aeroplane squadrons.

Three German aeroplanes yesterday dropped 31 bombs on the Russian warship "Slava" in the Gulf of Riga, making several hits. A fire was clearly observed. Despite a very violent bombardment all the aeroplanes returned undamaged.

* * *

The communiqué of April 29th says:—

Our anti-aircraft guns brought down a French aeroplane south of Moronvilliers in Champagne; the occupants were dead. First Lieut. Böckle shot down south of Vaux his fifteenth enemy aeroplane.

North-west of the farm of Thiaumont, a German aviator, in a fight against three enemy machines over Verdun and Belleray, shot down one of them.

* * *

The communiqué of May 1st says:—

Our aeroplane squadrons abundantly bombarded enemy troop quarters west of Verdun and magazines to the south of the town.

In an air fight a French biplane was shot down east of Noyon. The occupants were dead.

* * *

The communiqué of April 26th, describing the Naval raid on Yarmouth and Lowestoft, says:—

Simultaneously with the attack of our naval forces a naval air squadron attacked during the night of the 24th the Eastern Counties of England, and bombs were dropped with good effect on industrial buildings at Cambridge and Norwich and railway buildings near Lincoln and on batteries near Winterton, Ipswich, Norwich, and Harwich, as well as on enemy patrol boats off the coast. In spite of a most violent bombardment, all our airships landed untouched in our harbours.

Aeroplanes of our naval air detachment early on Tuesday morning effectively bombed harbour works, fortifications, and aerodrome of Dunkirk. All returned undamaged.

* * *

An official report circulated by wireless on April 26th says:—

During the night German military airships attacked the English fortified and port establishments of London, Colchester, Blackwater, and Ramsgate, as well as the French port and the large English supply depot at Etaples.

* * *

An official report circulated by wireless on April 27th says:—

During last night an attack was made by an airship on the port and railway depots at Margate, on the east coast of England.

* * *

It is reported in Denmark that on April 30th British aviators attacked the fortifications on the island of Sylt. A German aeroplane was brought into Tondern in a demolished condition on the following day. There is no official confirmation up to the time of going to press.

A report from Berne states that the German aviator who recently violated Swiss territory has been dismissed the service for his offence.

RUSSIA.

The communiqué of April 25th says:—

Our aviators threw 36 bombs on important points behind the enemy's front, particularly on the railway station of Jelovka, west of Illukst.

Enemy aeroplanes dropped bombs in the region of Molodetchno.

The communiqué of April 26th says:—

Enemy aeroplanes dropped bombs near Dvinsk and on the town itself. The enemy bombed various sectors of the Dvinsk positions and the region west of Postavy (south of Dvinsk).

South of the Krevo (which is south-east of Vilna) a number of German aeroplanes flew over our lines. One of them was hit and fell in our lines south-east of Krevo.

Enemy aeroplanes dropped bombs on the railway station of Gontzevitchi, between the railway stations of Baranovitchi and Luninets.

The communiqué of April 28th says:—

German aircraft dropped 30 bombs in the region of the village of Ostrovki, north-east of Stolbtzy, killing a number of Austrian prisoners.

The communiqué of April 29th says:—

Yesterday, shortly before 2 a.m., a dirigible appeared over Reshiza (50 miles west of the Dvina), where it dropped explosive and incendiary bombs.

In the Black Sea one of our submarines, which was bombarded by enemy aircraft and batteries without success, sank a steamer and a sailing ship.

AUSTRIA.

It is reported that near Daniele del Friuli an Austrian aviator fought four Italians and compelled one of them to descend precipitately.

ITALY.

The communiqué of April 30th says:—

Between the Giudicaria and Sugana valleys artillery activity and aerial reconnaissances took place.

Enemy aeroplanes aiming at Verona were repulsed by our anti-aircraft artillery and aeroplanes, the latter of which gave chase.

Enemy aeroplanes shelled the villages on the Lower Isonzo. There were some casualties, besides slight material damage.

The communiqué of May 1st says:—

Last night one of our airships, despite heavy clouds and stormy weather, reached the Lagarina Valley, where it bombarded the railway from Calliano to Trento and the railway station at Trento. The permanent way and the station were damaged, and fires broke out. The airship returned safely, although it was subjected to heavy artillery fire, helped by searchlights.

A new dirigible of the well known M (medium) type numbered 5, has just been safely "launched" at Turin, where she has been almost entirely constructed. Others of this type cubed about 40,000 cubic feet, and were fitted with 4 engines giving a total h.p. of somewhat over 500.—T. S. H.

TURKEY.

The communiqué of April 27th says:—

On the 25th inst. an enemy aerial squadron composed of nine machines raided Katia to avenge the defeat of their troops. Some Turkish aeroplanes successfully attacked one of the enemy's men-of-war off El Arish and the docks at Port Said, as also the enemy camp between Port Said and El Kantara. All the machines returned safely.

A semi-official telegram from Constantinople to Amsterdam, dated May 1st, relating to the fall of Kut, says:—

The British tried all possible means to supply food to the beleaguered force. They first threw down sacks of flour from aeroplanes, but Turkish forces put an end to this, Turkish battle aeroplanes shooting down one after another of these old British machines.

[This calm Turkish contempt of our "old British machines" is even harder to bear than Mr. Tennant's defence of our inadequate aircraft in the House, because it is true.—Ed.]

BULGARIA.

It was reported at Athens on April 26th that two Russian seaplanes have bombarded the powder factory at Zeitun Burun, in Eastern Rumelia. It is not known whether any damage was done.

According to advices from Sofia, the French aeroplane which flew over the Bulgarian capital on April 21st dropped bombs which destroyed a house and damaged a school in the Poduyene quarter, near the artillery barracks. Proclamations were dropped announcing the Turkish defeats.

GREECE.

It is reported that the Allied camps at Salonika were bombed by German aeroplanes on April 24th.

A French air flotilla again attacked the enemy camps at Doiran and Ghevgeli and threw many bombs.

On April 25th a French aeroplane intercepted an Albatros at Ostrovo as it was approaching Salonika from Monastir, and brought it down. This is the third enemy machine bagged by the same pair of aviators.

BELGIUM.

It is reported that Zeebrugge was bombarded by allied aeroplanes at 4 a.m. on April 24th.



Two eagles shot from an aeroplane piloted by the Adjutant-Aviateur Louis Noël on a trip from Salonika.

U.S.A.

The first U.S. army airship has passed its initial tests in its shed at the State Armoury in New Haven, and is now ready for practical work at the summer army encampment at Tobyhanna, Pa.

For a period of two weeks a squad of volunteers from the National Guard of Connecticut underwent instruction in handling the airship in its shed, under the supervision of Herr E. J. Widmer, an ex-Zeppelin pilot.

In the meantime the airship is being sent to Pensacola, where it will be used at the naval training school, so the chances of the U.S. army finding much of the airship to use at their concentration in the summer do not seem overwhelmingly great.

In the meantime the airship, which was built by the Connecticut Aircraft Company, is 175 feet long, 35 feet in diameter and 150,000 cubic feet in capacity. The ship's weight complete is 5,000 lbs., and its useful load 2,000 lbs. The contemplated speed is 35 miles an hour.

The airship is propelled by an 8-cylinder motor, driving two 4-blade airscrews through bevel gears. Provision is made for swivelling the propellers, in the manner invented by Mr. E. T. Willows, and appropriated by the Royal Aircraft Factory.

The gas balloon is provided with two air ballonets to preserve rigidity and to assist longitudinal control. The car is so suspended as to maintain a level attitude, no matter what the inclination of the airship may be.

[Since the above notes were written it is reported that the "D-N 1," as the airship is officially and appropriately numbered, has broken loose and gone for a trip on her own account, so presumably the question as to whether she is naval or military is adjourned *sine die*.]

THE INVASIONS OF ENGLAND.

The raid on Kent and Essex on April 25th did not seem to produce any notable result from any point of view. One of the Zeppelins appeared over the outskirts of a large town and was effectively exhibited to the populace by the anti-aircraft stations which illuminated the intruder with their searchlights. A heavy fire was opened, but there is no definite news that the Zeppelin was hit.

Apparently the major object of the raid was to effect a reconnaissance on behalf of the cruiser squadron which attacked Yarmouth and Lowestoft. Judging from the near approach of the German vessels the enemy were satisfied that no overwhelming British force was immediately available.

Walter Pardon, a resident of Addiscombe, was fined £5 at Croydon on April 25th for having a bonfire in his garden while an air raid was in progress on March 31st.

The offence was certainly unpardonable, but it suggests an almost laudable desire, if not intention, to set the Zeppelin on fire should it have chanced to approach the bonfire sufficiently closely for Boyle's Law to operate.

AN IMPORTANT ARRANGEMENT.

Major W. H. Allen, R.G.A., of Evenley Hall, Brackley, Northants, has joined the Board of The Fairby Construction Co., Ltd. Congratulations to both parties.

THE QUEEN'S HALL MEETING.

Some six hundred supporters of the Navy League gathered together in the name of Aerial Defence, and in a highly decorous manner, on April 28th, to hear a speech delivered at Queen's Hall by Lord Montagu of Beaulieu, who laid down therein his proposals for improvement of the Flying Services and criticised the Cabinet.

It is somewhat extraordinary that the reports of the speech in the daily papers miss out many of the most vital statements.

The chair was taken by Mr. Robert Yerburgh, President of the League, and amongst those on the platform were Lord Leith, Lord Blyth, Lord Robertson, the Earl of Hardwicke, the Lord Mayor of Bradford, the Mayors of Greenwich, Deptford, Battersea, Kensington, Lewisham, and Wandsworth, the High Commissioner for New Zealand, Mr. H. Nield, K.C., M.P., Sir C. N. Nicholson, M.P., Col. J. Gretton, M.P., Sir H. F. Hibbert, M.P., Mr. A. St. G. Hamersley, M.P., Mr. A. Shirley Benn, M.P., Mr. Ellis Griffith, K.C., M.P., Sir T. Dewar, Admiral Fremantle, and Admiral Sir E. Wilmore.

The Chairman reminded the meeting that in 1913 the Navy League held a meeting at the Mansion House, at which resolutions were unanimously passed urging the Government to adopt a vigorous policy which would secure our supremacy in the air. To-day, after twenty months of war, in which we were fighting for our existence as a free people, this meeting had been called for precisely the same purpose. Why had that been necessary? Because the Government had failed to recognise the supreme importance of the subject. Proof of that was to be found in the humiliating fact that Zeppelins had raided these islands and murdered women and children with impunity, and that the enemy battle-cruisers with their assistance had been able to get to our coasts, bombard defenceless towns, and return in safety to the shelter of their fortified bases. This could not have been had Ministers shown a grasp of the situation, foresight, and vision.

Lord Montagu said he was not the only air missionary. There were others who believed in the use of red paint and the help of the big drum, but personally he thought it was better to confine oneself to reason and argument.

There was a general lack of co-operation between the Admiralty and the War Office. People talked about healthy rivalry between the two Services. Rivalry and competition might be very well in times of peace, but in times of war we should have co-operation, not competition, between departments. (Applause.)

At the present moment there was one very important branch of aviation, which he could not specify without disclosing too much, upon which the Cabinet had not yet come to any decision, and which was not allocated to either of the two Services. That was a scandal. (Approval.) Private manufacturers deserved thanks for the efforts they had made, but they were discouraged by the duplicated criticisms they received from both Services.

[Lord Montagu referred, presumably, to captious interference in designs by so-called technical "experts" of both Services.—Ed.]

The interchange of designs and results of experiments was of the most shadowy kind. There was often quarrelling between departments in the same office. Three or four Sea Lords had to be consulted on R.N.A.S. details, which caused delay because busy men did not like to be interrupted by requests for their decisions. And departments were liable to be dictated to by administrative heads, who had little sympathy with and little knowledge of the subjects referred to them.

He admitted that the Admiralty had shown more vision than the War Office. It was due to Mr. Churchill to say that in the early days of the R.N.A.S. he did good work because he had vision, but even he did ill-service in that he did not believe in the rigid airship as a necessary part of the eyes of the Fleet. For courage in experimenting, striking out on new lines, and being original, the R.N.A.S. was ahead of the R.F.C. [Because in Mr. Churchill's day it was free of R.A.F. influence, which now seems to dominate every move of the Construction Department at the Admiralty.—Ed.]

The War Office had a representative on the Army Council. Would it not be advisable for the Admiralty to have a representative of the R.N.A.S. on the Board of Admiralty?

ON THE R.A.F.

It was said that we must go on with the Royal Aircraft Factory on the present system. He was told on very good authority that the factory was thoroughly distrusted in the aircraft trade. [He might have added: "and in the R.F.C."—Ed.]

If we were going to have a Government factory at all it should be in alliance with and have the support and confidence of great firms who were building engines and planes, and should not be a competitor. (Hear, hear.) It should be the consultant of the inventor, the designer, and the manufacturer, but never a competitor. In France and Germany all the finest engines and planes came out of private works. He had never known the State, in any walk of life, do its work so well as any efficient private firm.

AN IMPERIAL AIR SERVICE.

Lord Montagu said he would abolish the present titles of the two Flying Services and substitute the title Imperial Air Service, because it was going to be more imperial in character than anything we had now. As soon as it had met the needs of the Navy and the Army it should have power to start long-distance raiding.

He proposed that the Board of Aviation should first concentrate

upon problems of design, construction, and supply of aircraft. At present we were using the same machines for bombing, reconnaissance, fighting, and photography. We must have types for each purpose. The Board of Aviation should combine all the energies and experience and ability of the present staffs as much as possible. If all this was done he should be content. [Which might mean being content with a combination of the Royal Aircraft Factory and the Ministry of Munitions, a proposal which seems worse than the present state of affairs, as it would leave the same people in control and remove competition between the Services. Lord Montagu would do well to safeguard himself against such an interpretation being put on his words.—Ed.]

But to do it we must have a man to carry the proposals into effect—a man who would have equal weight in the Government as the Ministers who represented the Admiralty and the War Office, or any other office of State. (Approval.) Scientific experiment should be more considered than it was now. The problems of aviation were as yet only half solved. We should spend hundreds, even thousands, of pounds a year on the discovery of scientific facts. The nation which first achieved such discoveries would have an enormous advantage. Before the war it had been all thinking and very little construction. Now it was a great deal of construction and very little thinking. [The thinking is being done by the "Trade" and by active-service aviators, but the official construction departments do not make use of the thoughts produced.—Ed.]

WHERE THE OPPOSITION LIES.

Was there any opposition to these proposals? The country was much keener on the subject than the Government. (Applause.) In all the big things in this war the country had been first, the Houses of Parliament second, and the Government a bad third. (Applause.) He did not see any opposition amongst the personnel of the two Services or from any people worth talking about. The only opposition was that of a certain number of Ministers and heads of departments. Our governors and departmental chiefs did not like the idea of a plunge. Officials were jealous of the opportunities others now had of achieving what they had failed to do.

Some people who could not see more than a few inches beyond their noses talked about others like himself as wild cranks who were trying to stir up trouble. He was absolutely indifferent to that. He regarded it as a tonic. He liked being abused and revelled in criticism; it spurred him on and showed him his weak points. (Applause.)

He knew there were enlightened members of the Cabinet—(sounds expressive of doubt)—who were trying to persuade their colleagues in the direction they desired. Those men were helping and would do their best.

He had been asked, Did he want to become Minister of Aviation?—was he out for a job? He was out for a job, and the job was to put the truth before the people of this country and to try and convert the Government. But he told them frankly that if this or any Cabinet were to ask him to act as official head of military and naval aviation, he would do it, and put his whole heart and mind and strength into the job, or he would serve under any qualified person; he would sweep the steps of the office if it would do the country good. [As pointed out many months ago, that is a pernicious doctrine. One of the curses of this country is that the best men are content to be in the subordinate positions.—Ed.] Even if he were not wanted for that humble job he would go back gladly to India in September and serve the Empire on the frontier as he did for nine months of last year. Therefore, to those who asked if he was out for a job he said he would do anything to help on this great cause. (Considerable applause.)

"NEW MEN WITH NEW IDEAS."

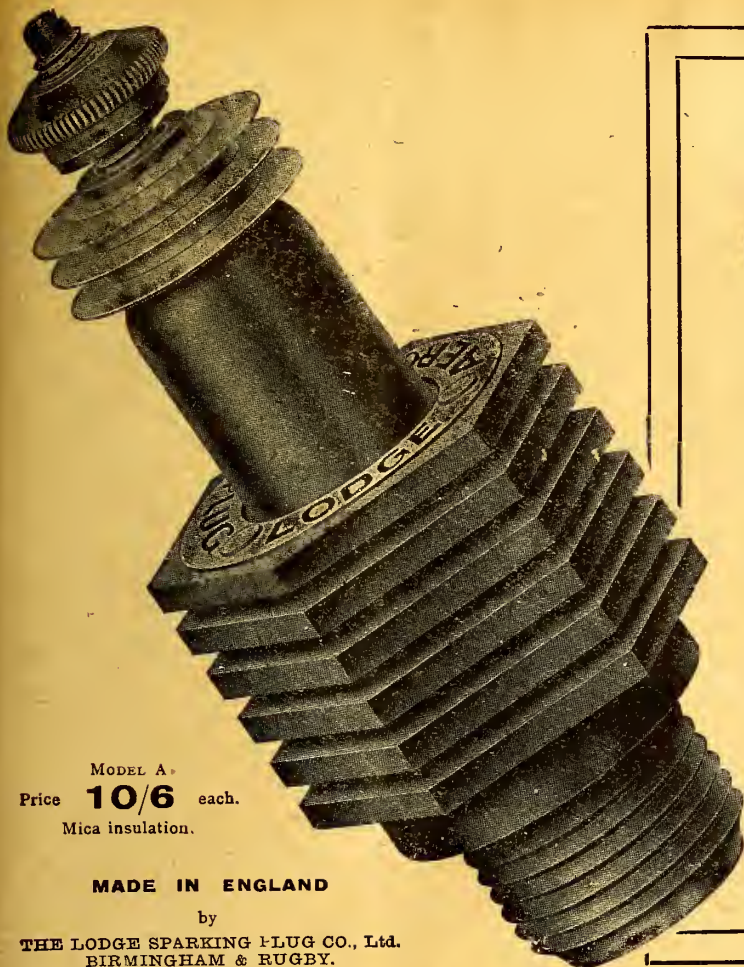
What we wanted was to encourage the juniors, the men who were doing the work and knew the business, in both Services, and to have new men with new ideas at the top. We wanted new men with new ideas to rule the Empire as well as aviation.

Party politics had driven the best people out of national politics. He himself had never been a party man, but had for years been a looker-on at what seemed rather a dirty business.

Three of our cherished illusions had gone, our Fleet was supreme on the sea, but not under it or over it. Our voluntary system of recruiting had proved inadequate. And our soil was no longer inviolate. Sea Power must be allied to Air Power, and we must gain the command of the Air for the safety of the Empire. The R.F.C. motto was "Per Ardua Ad Astra" (through hardships to the stars); he suggested for the Imperial Air Service "In Caelo Imperium" (Empire—or Dominion—in the Sky).

"I ask you to send a clear message to the Government this afternoon," said Lord Montagu. "Tell them they must not stand trembling on the brink of decision, but that action must be taken. I know you will do this, and help me to lay well and truly the foundations of the Imperial Air Service upon which in a few years will depend the destiny of our Empire and our race."

On the motion of the Lord Mayor of Bradford, seconded by the Mayor of Kensington, a resolution was carried unanimously urging upon the Government the pressing necessity for more vigorous and comprehensive measures in relation to aircraft as an arm of national defence, and approving the creation of a Board of Aviation, under the control of an Air Minister.



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THE ALBERT HALL DEMONSTRATION.

A big crowd, variously estimated as numbering between 5,000 and 7,000 people, gathered at the Albert Hall to hear Mr. Pemberton-Billing on Saturday, April 29th. The fact that so many Londoners could be induced to stay under a roof to hear men talk on the first summerlike Saturday of the year shows how deeply people feel the gravity of the present situation.

Some hundreds more were turned away from the doors, owing to there being no tickets left for them, and the vacant seats were accounted for by the fact that people who had applied for tickets did not use them or return them. Whether the weather kept them away, or whether political opponents applied for tickets in the hope of causing a "frost" by leaving vacant seats, is not decided. It is understood, however, that certain officials seriously considered prohibiting the meeting. Anyhow, the crowd was absolutely with the speakers in their condemnation of official behaviour, and the fact that a very large number of officers of both Services, and men also, were present, and were openly sympathetic, was highly significant.

Mr. Arnold White was in the chair, and on the platform were Mr. Annan Bryce, Mr. Hogge, M.P., Dr. Lynch, M.P., Mr. Kennedy Jones, and Mr. Charles Palmer, late editor of the "Globe."

Mr. Arnold White emphasised the fact that the German Admiral has eyes for his fleet, while the British Government has refused eyes to the British Admiral. He pointed out that Mr. Pemberton-Billing had come out of uniform in the middle of a great war, and had taken his place alone among the sneering benches of the House of Commons, and had done more in three weeks than the Government had done in eighteen months.

Mr. Pemberton-Billing's speech is reported verbatim, but portions have been deleted owing to pressure on space. He said:—

Mr. Chairman, Sir, Ladies and Gentlemen,—It is not my intention to refer to any of my critics. I dismiss their vulgar abuse, for vulgar abuse it is, and would say this: that when the game has ended and when the cards are all disclosed, then the people can judge for themselves why each man played and whether he played fair.

I have been asked if I would be prepared under any circumstances to support the Government. My answer is this: I would support the Government only in a moment of National panic, as distinct from National crisis. (Hear, hear.) National crisis is a healthy sign; it means that this country at last is waking up to its responsibilities, and is anxious to see its Government behaving like men of blood, instead of men of water. National panic, on the other hand, may be described as when the unreasoning crowds take advantage of weak Government to move against the better interests of our Empire. Under circumstances of a National panic, and those alone, should I feel it my duty, distasteful as it might be, to ally myself with the present Government.

The most important thing that can occupy the mind of any man or woman in this country to-day is: Are we keeping our pledges, are we doing what we undertook to do? I can only express it as my opinion that France is not satisfied with us, that Russia is not satisfied with us, and that those in the world who are not sniggering with glee at our behaviour in the hope of turning it to their national gain are ashamed of us to-day. And it is for that reason, Sir, I took up what some of my friends may think was an extraordinary attitude, after having left the Service for it, and after having fought two by-elections for it, and after having, in the language of some of my critics, made myself a nuisance in the House of Commons for six weeks over it, on Thursday I begged the House to refuse to enter into an Air Debate until some satisfactory recruiting statement had been made by the Prime Minister of this country.

When I saw the Prime Minister standing in the House the other afternoon, I was reminded of those lines of Kipling in "The Islanders," and it is wonderful how apt they are:—

"Given to strong delusion, wholly believing a lie

Ye saw the land lie fenceless and let the months go by.

Waiting some easy wonder, hoping some saving sign

Idle, openly idle, in the lee of the forespent line."

(Applause.)

Is it necessary because our Government have failed us that our Empire must fall? (Cries of "No!") Are there not in the whole of this Empire 23 better men? (Cries of "Yes" and applause.) I wonder who were the other twenty-two in the days of Napoleon—we do not hear of them. We hear a lot of the fallacy of changing horses while crossing the stream. I have crossed many streams and many rushing waters with horses, but if I found that I was bound to a dead carcass instead of living flesh, I should cut myself adrift. It is time that we took the running of this war out of the hands of politicians—(applause)—and placed in the hands of those people whose profession it is to conduct war—soldiers and sailors. (Applause.)

We must not be too hard on the Ministers. They have usurped the position of statesmen for eight years, and we must admit they are usurping the position of soldiers to-day. But remember they have never warred with anything more terrible than words. They have won their reputations with words; they have become rich

through using words; they have captured the sweets of office with words—but I assure you that we shall not beat the German Empire with words. (Cries of "No!") And, therefore, I think it is time that we told them as kindly as we can—(laughter)—that we are "through" with them.

I have been told, and I believe it truly, that we are fighting for our national existence—and I say that we are fighting for something greater than that, we are fighting for national honour. (Applause.) And although we may win through at the loss of it, this Empire is eternally disgraced if we win without holding it. Unless we keep our pledges to our Allies, unless we keep the unity which is talked of so much and practised so little, unless we finish this war holding the love and respect of all our Dominions—holding the respect of all those men and all those nations who have helped us, and helped us much more than some of you in this hall appreciate, or, perhaps, ever will understand—unless we do that, we shall have won, I assure you, a barren victory, and the day will not be far distant when we shall pay the punishment that all Empires pay that forget honour.

It has been said that holding meetings of this sort, holding meetings as I have held them all over the country and writing somewhat freely, is "beating the big drum." Well, ladies and gentlemen, I assure you I would sooner stand here an Englishman beating a drum in the hope that the country will awake, than I would be one of His Majesty's Ministers standing on the floor of the House beating an impotent breast.

Nothing will move this Government but public opinion. Public opinion must be brought to bear upon them. When they see they have either got to get on or get out—(Cries of "Get out" and applause)—I really think they would sooner get on.

THE IMPERIAL NINE.

It has been suggested that an alternative Government is impossible. (Cries of "No.") Well, I will try and throw out a suggestion now for what might possibly be brought into play for conducting and carrying on this war, not only to a victorious conclusion, but to an honourable and glorious conclusion. If I were asked to help I should say "Give me an Imperial Nine." Bring me a man from Canada, you have got Borden if you like; bring me a man from South Africa—(Cries of "Botha")—you can have Botha; bring me a man from Australia—(Cries of "Hughes")—yes, Hughes; bring me a soldier, bring me a sailor, bring me an aviator, then let us have this country's representatives—bring me a Conservative, bring me a Liberal, bring me a Labour man. That means only nine, not twenty-three. Let them form an Imperial Nine, let them form a War Council, and let each one of those men form, in the House of Commons, if he so wishes, a Committee, and by that means we might possibly be able to employ the somewhat idle hours of our Members—and employ them on something which is more constructive in place of the ever necessary destructive policy which the outs are pledged to apply to the ins. I think such a Council would bring our nation more closely together; would bind our Empire; it would govern us, it would win us love and respect throughout all our Dominions and Possessions, and every man in the Empire, no matter who he was, would feel that his country had a representative who had a hand in the game, and who was taking a real part in a real war. (Applause.)

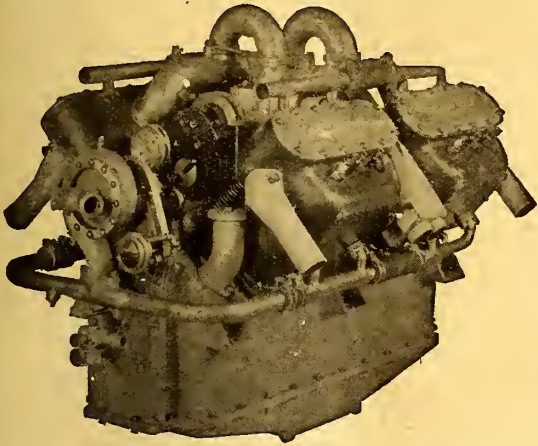
I was asked the other day: What is the policy of the Coalition Government with reference to the air? Well, all I have to say is, that the Cabinet are in a very awkward position—it is no use beating about the bush. The Air Service started by being the hobby of the Army. Very shortly afterwards it became the hobby of the Navy, that is, there were many officers in both Services who possessed imagination, and saw in this new arm, although very few realised its possibilities, the opportunity of a new sphere of activity, and a more attractive and—I admit it as an ex-pilot—a little more sensational form of life.

And, then, you see the war came, and we were quite unprepared in the air, as in every other arm which we possess, not from want of eight years' warning, no, simply because we had no statesmen, we only had politicians. (Hear, hear.) So a policy of rapid production was entered into—a policy of panic building—panic legislation which always comes about when men are suddenly faced with a serious opposition, and are not prepared, and the Government were asked to take this question more seriously. But they did not, and now, although during the first few months of the war, owing to the splendid personnel of the Services, with indifferent and inferior machines, we gained for a few brief weeks supremacy of the air, we lost it directly the mechanical efficiency of the German had an opportunity of operating.

To-day we are a third-class Air Power—(Cries of "Shame!") Germany is first, so far first that she not only beats ourselves, she not only beats the French, the Russians, the Italians, and what is left of the Belgians, she not only holds them back, but she has machines enough and to spare to carry the air war into our respective countries.

We have seen very little yet of what raids really mean. We have had so many raids, I cannot tell you how many, and so many bombs have been dropped, and so many people have been killed, and it has disorganised this country as it disorganised the other night the raid took place. That means, for £2,000 or £3,000,

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which it costs the Germans to send an airship to this country, there is disorganisation, muddle and confusion, and the condition of huddled impotence in which this country lies costs this country when a raid takes place something like a million of money.

Munition factories are shut down, which means that our men at the front are going to be kept short of munitions, if they are necessary; if they are not necessary, why do they work at night?

The Germans have, I heard to-day, just launched their hundredth Zeppelin. We all know some have been destroyed, but there are still between 40 and 60. It is not only that, it is so distressing for everybody to find the trains held up—you cannot get back and you cannot get on. It is demoralising, it is insulting, and I assure you I consider the way in which the German air fleet has raided our country is an insult which will take a lot of wiping out. (Cheers.) I put it to this meeting that if we are satisfied that the whole of Berlin were huddled, and darkened, that Germany had put all her towns in darkness, and that all we had to do was to announce by wireless that we were sending over an airship to hold up all her ammunition factories, and all her railways, I really think we should begin to believe that we had won the war. (Hear, hear.)

And what do the Government do? They simply make fatuous answers to straight questions. (Hear, hear.) They wriggle here, and they wriggle there; they are so busy defending their departments, they have not got time to defend their country. (Applause.)

Can the aeroplane raids be stopped? Can the Zeppelin raids be stopped? Of course, it is impossible always to stop a Zeppelin raid over this country—but it has been done; I think one Zeppelin has been secured. But you must remember that a Zeppelin shed is about 900 ft. long in most cases, 130 ft. wide, and about 90 ft. high. Well, that provides a very good target indeed, and if you will allow me to say so, I think I am echoing the opinion of most aviators in saying that where they build them, and where they house them—that is the place to fight them. (Cheers.) If the enemy aviators have the courage to come over to our country, I am perfectly confident that if the Government will give the men the machines our men have got the courage to go. (Applause.)

The people who talk to me about reprisals bore me. I read in air reprisals killing by every means in your power every man who has tried to encompass the downfall of our country. I do not care whether he is firing a gun, or making a gun, or chopping down the trees to make wooden butts for guns, he is an enemy. We must kill him, and the sooner this country takes off the gloves the better it will be for our country. If we were fighting the Germans alone we should have taken off our gloves long ago; we should have been forced to do so or we should have gone under. And are we going to have it said that we sit with our gloves on behind a rampart of French dead?

You leave it to the soldiers and the sailors and see how long it takes for the gloves to come off! And if we are going to carry the war into the air we must have an Air Service. It is possible now to collect all the aeroplanes in this country. There are many lying about doing nothing, and there are many good pilots; I can say without exaggeration there are hundreds of them walking about, waiting for orders to go, and with these one could create the nucleus of an Imperial Air Service in six weeks.

We can still leave to the Army that which rightly belongs to the Army, and to the Navy that which belongs to the Navy, such as the observation machines, the gun-spotting, and possibly the long reconnaissance machines. That is all the functions of the Army or the Navy, and then we should have the great raiding and the great fighting fleet which we have to create.

I suggest to Mr. Asquith that we should have one Board for the construction of all types of machines, and on that Board we should have a representative of the Army and a representative of the Navy to see these two respective Services have fair play and get what they want; and if we had that one Board and brought together all the manufacturers of this country into one comprehensive scheme, and produced in thousands instead of in tens, we may then within the next year or eighteen months—and I am sorry to say I believe the war will still be raging then—be able to deliver the blow which will alter the colour of the picture. And if we do not strike, the enemy will.

When you think that for the cost of two or three days' war we could win the supremacy of the air so far as the financial side is concerned, it leaves us then with the question: Have we the brains, have we the resources?

Only national opinion can bring pressure to bear on the Government, and we must bring it, and that is why I started what has been known as the Imperial Air Convention. That was done to form a petition so that before very long I can place a million signatures in the House. (Applause.) I can then say: "Here are a million of the people who have put you here, and who are providing you with the sweets of office; they want something done, and are going to have it done. (Applause.)"

Consider what the Germans have spent in twenty years of preparation. On naval construction they spent £320,000,000; on naval upkeep, £420,000,000; on army upkeep, £1,760,000,000; and on espionage, on spying in this country—on providing members for the House of Commons—(laughter and Hear, hear)—I was referring to Lincoln, the member for Darlington—(cries of "What about —?")—are they all cleared out? Well, when

I think of that man and the reception he got in the House I think that secret sessions are a farce. (Hear, hear.) £47,000,000 on spying! Why, that £47,000,000 spent on aircraft, with a couple of years in hand, would win this war in a week. (Applause.)

So, during these years of preparation which everybody saw, everyone who was a thinking man, bar the men who had the destiny of our Empire in their hands, the men to whom we had entrusted our lives, they are the only people who did not see. Everybody else saw, and Lord Roberts stumped the country, old as he was—(applause)—Lord Roberts beating the big drum; would they listen? (Cries of "No.") Would any of you listen? (Cries of "Yes" and "No.") Ah! now you will listen.

There are many weapons beside the weapon of the air which must be employed to beat the Germans to-day, but it will be only one weapon in ten years' time, only one weapon that will count—and that will be the squadrons of the air.

Will there be any more "scraps of paper" then? Not on your life! There will just be a little strained feeling on the Continent, and we, of course, shall say that something has got to be done; and, by God, the Huns will do it! If we make a peace which is not complete and does not contain a clause giving us or the Allies the control of the German building policy we are a damned nation in ten years' time.

We must win this war, it is no use talking about it. (Applause.) And I am confident, I am absolutely sure, that the present Government will lose this war if we leave them where they are. (Hear, hear.) They vacillate, they will hesitate, they will wait, they will postpone, until we shall have a terrible national disaster, something far bigger than we have had, and then the country will go mad, and you cannot fight with a mad country.

We want to use the present crisis to put our House in order. (Hear, hear.) We want the people of this country to express their views, even if it is only by writing to the newspapers. You must remember the paper lives by the people who buy it, and if enough people write expressing one view, that becomes the view of the paper, and so there are many of you here this afternoon who can do real good work even by writing to the newspapers, telling them that you will not stand for it, that the country will not stand for it, that we have proved that we are an Empire of men demanding to be led by men. (Applause.)

We inherited from our fathers the supremacy of the sea. Owing to the foresight of our forefathers, owing to their sacrifice, owing to what they worked for, what they bled for, what they prepared, when Germany flung down the gauntlet in August, 1914 this country was comparatively safe from what Belgium suffered, and if any man has gone through Belgium and seen what they have done there, by God, we have got something to thank our forefathers for. (Hear, hear.) Now I think the least we can do is to leave our children the supremacy in the ocean of the air as our forefathers left us the supremacy of the sea. (Applause.)

Some nation is going to be supreme in the air, and the nation that is supreme in the air will dictate to the world; the nation that is supreme in the air can work, for good or evil, the destiny not only of itself, but of most of the civilised world. Some people, some nation; and when I speak of some people I come back to the words which Kipling wrote in "The Islanders":—

"Surely you are the people, Absolute, strong and wise,

Whatever your heart has desired you have not withheld from your eyes.

On your own head, in your own hands, the sin and the saving lies."

Prolonged cheering followed Mr. Pemberton-Billing's peroration, and showed not only clearly but truly the feeling of the people of England.

The following resolution was adopted with the greatest enthusiasm:—

This meeting, convinced that the safety and welfare of the British Empire depend in a great measure on supremacy in the air, pledges itself to use every effort to attain and maintain for this country an Imperial Air Service worthy of its Imperial power.

Mr. ANNAN BRYCE, M.P., who moved the resolution, referred to the Prime Minister's statement that the break-up of the Coalition Government would be a national disaster, and said that a greater disaster would be the loss of the war. He would much rather lose the Government than lose the war, and he greatly feared we should lose the war if we did not get better leadership than we had at present. (Cheers.) He also referred to the discreditable methods adopted by the Government's supporters in their efforts to discredit Mr. Pemberton-Billing.

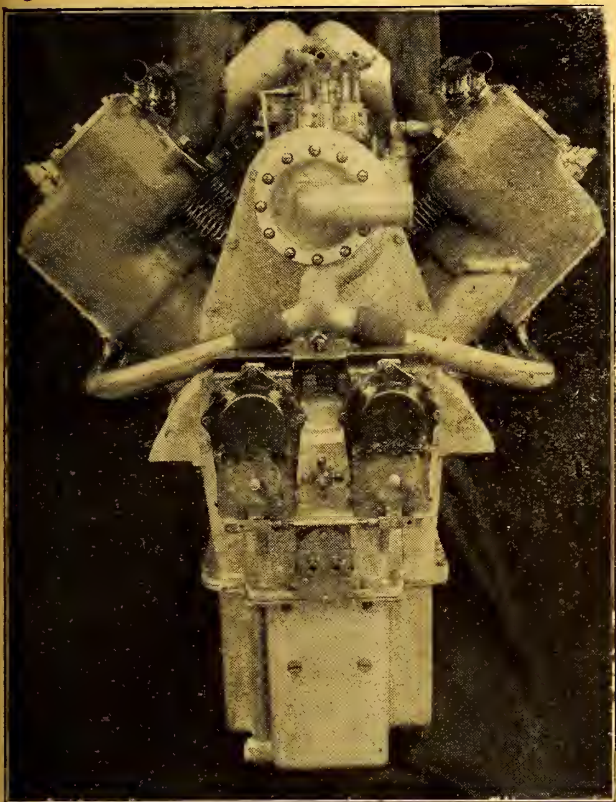
Mr. KENNEDY JONES seconded the resolution.

Mr. HOGGE, in a very sensible yet humorous speech, proposed a vote of thanks to the chairman.

On leaving the hall by a back door to escape the great crowd waiting in front, Mr. Pemberton-Billing ran into the arms of a smaller but very determined crowd, which had recognised his car and had gathered round it. Only with difficulty did he tear himself away from his admirers, and he was given a great ovation as he left.



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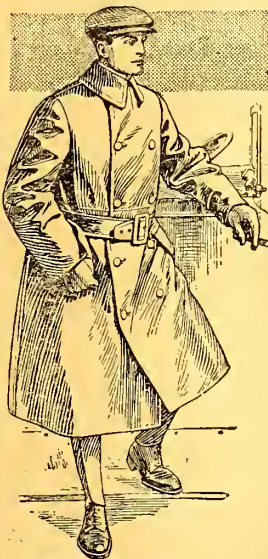
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PROGRESS AT RICHMOND.

Anyone visiting the Whitehead Aircraft Works at Richmond after an interval of two or three months would probably be astonished at the developments which have taken place—unless familiar with the extraordinary energy and resource of Mr. Whitehead himself. It is but a short time since the first aeroplane constructed there was christened, and not much further back to the very inception of the business, but the works now to be seen are large and well equipped, and present every appearance of being used to great advantage.

Probably Mr. Whitehead's strong point lies in the fact that he is capable of taking off his coat on occasion, and showing his men how things ought to be done. The result is that they respect him accordingly, and work to the best of their ability. There are proofs of keenness on every hand.

Many additions and improvements are noticeable in the original works, but the most striking achievement is to be seen on a new site which was acquired a short time back. A few yards only from the Townshend Road, a piece of ground, having a frontage in Manor Park Road, and another on the railway, was taken five weeks ago, and the foundations of the Manor Park Works were laid.

To-day work is proceeding here in fine style, although the buildings are not yet complete, and when one considers that it has all been done by the Whitehead Aircraft Company, the achievement is a notable one.

When finished there will be a fine erecting shop, 300 feet long by 70 feet wide, and three other buildings for the saw-mill, the doping and the covering shops, these being each 120 by 40 feet. Two 50-h.p. suction gas plants have been installed which will drive the dynamos and motors for the shops, provide electric lighting, and run the ventilating fans for the doping department.

Near the railway siding there are large sheds which contain a valuable stock of first-class timber, specially selected, so that the best of wood-work may be expected from this firm.

The new works will make it possible for Mr. Whitehead to undertake orders for aeroplanes on sub-contracts.

Anyone who may have any doubts as to the ability of Mr. Whitehead to "make good" when he first started at Richmond may be recommended to go and see what has been accomplished already, and the indications of what will be done in the very near future. Some important contracts have already been carried out, and others are being taken on which look like adding considerably to the welfare of the famous resort on the Thames, and, at the same time, assisting materially in the conduct of national defence.

—D. W. T.

A VALUABLE BOOK.

A. V. Roe & Co., Ltd., have issued a booklet on the erection and alignment of the 80 h.p. Avro biplane.

The book has been arranged with an idea of making it easily understandable for the air mechanic of average intelligence, and accordingly all the methods for truing-up have been described very fully.

With a view to making the book specially useful to those engaged in repairing machines, a number of original tables have been included, giving data which it is quite likely would be required at an air station where a complete set of spares for the machines are not available, and consequently the "next best thing" has to be used.

It was also thought the book might be useful for instructing classes of recruits for the Services, and accordingly ease of reference has been kept in view when arranging the book.

It is the intention of the Avro Company to supply a number of these books to the War Office and the Admiralty, and they will be glad to supply one to any responsible officer who may need one for instruction or other purposes in connection with Avro biplanes who is unable to obtain one through official channels.

The book is published at the modest price of one shilling, and may be obtained from A. V. Roe & Co., Ltd., Miles Platting, Manchester.

AN ADDRESS WANTED.

A well known aeronautical engineer will be glad if M. Emil Boudot, draughtsman, formerly in his employment, will communicate with THE AEROPLANE, 166, Piccadilly, W.

THE WEEK-END AT HENDON.

Thanks to the continued fine weather there was a good attendance at Hendon on both Saturday and Sunday. Many motor-cars filled the enclosures, and the restaurants filled many visitors. The wind was rather high on Saturday, but a number of flights were made by Messrs. Russell, Pashley, and Hale, of the Grahame-White School, the machine in each case being the new three-seater G.-W. biplane. A large number of passengers were taken up. A Curtiss was also undergoing tests during the afternoon.

On Sunday the attendance was again excellent. A strong downward current of air appeared to prevent the box-kites from getting any distance off the ground, but the three-seater again came to the rescue, and the crowd was well entertained. At least two dozen passengers went up, two at a time, as in the days of Noah, and as the air was unusually clear they enjoyed good views over the surrounding country.

Several Service machines were seen in the higher regions, some



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of them coming over from other aerodromes and disappearing again without descending. The amount of publicity which has been given to the Air Services, both in and out of the Houses of Parliament, has evidently had the effect of awakening fresh interest in aircraft on the part of the general public, and it looks as though the London Aerodrome will do useful educative work in the summer.—D. W. T.

SCHOOL REPORTS. HENDON.

AT THE GRAHAME-WHITE SCHOOL.

Straights with Instructor: Messrs. Burrell, Hillaby, Matthews, Phillips, Robourdin, Forster, Parkinson, Mulville, Sloden, Smith, Goodhart, Bathurst, Spencer, Stapley, and De Beer.

Circuits with Instructor: Messrs. Williams (F.) and Box.

Eights with Instructor: Messrs. Schedt and Walk.

Circuits alone: Messrs. Leigh and Kryn.

Eights alone: Prob. Flight Sub-Lieut. Griffin, Messrs. Hathaway and Sandys.

Brevets during the week: Messrs. Henshaw, Holman, and Timmis.

AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors: Messrs. W. T. Warren, M. G. Smiles, W. L. Hay, and W. T. Warren, jun.

Pupils alone: Messrs. Quayle, Egelstaff, Crawford, Jones, Evernden, and Pulford, rolling; Messrs. Aldous, Foley, Frost, Woods, Creaghan, Crawford, and Dawson, straights.

Eights or circuits alone: Messrs. Hay, de Goussencourt, Aldous, and Frost.

Certificates were taken by Messrs. W. L. Hay and P. de Goussencourt.

Machines in use: Three tractor biplanes.

AT THE RUFFY-BAUMANN SCHOOL OF FLYING.

Instructors for the week: Messrs. Edouard Baumann, Felix Ruffy, Ami Baumann, André Thomsen, Clarence Winchester.

Pupils with Instructor: Messrs. Wilson, Johnstone, Straus, Carr, Westlake, Edgar, Fanshawe.

Pupils doing straights or rolling alone: Messrs. Williams, D'Opstael, May, Van Haverlicke, Hoskings, Durand, Whittaker, Fraser.

Pupils doing figures of eight or circuits alone: Muspratt, Cox, D'Opstael, May.

Certificates were taken during the week by Messrs. K. Muspratt and Leslie Cox; both exceptionally good tickets.

Machines in use: Ruffy-Baumann Caudron type tractor biplanes. Several passengers carried throughout the holidays and week following.

AT THE BEATTY SCHOOL.

Instructors for the week: Messrs. G. W. Beatty, R. W. Kenworthy, G. Virgilio, H. Sykes, A. E. Mitchell, H. Fawcett.

Pupils out during the week: Messrs. d'Allesina, Schollaert, Atkin, Cuthbert, Barrow, Mossop, Sellars, Parsons, Martin, Roberts, Knox, Smith, Stanley, Tjaarda, Dowding, Gaskin, Skeat, Hick, Earl, Davy, Garlick, Kay.

Mr. F. V. Branford flew for his certificate.

Machines in use: Beatty-Wright dual-control and single-seater propeller biplanes and Caudron dual-control and single-seater tractor biplanes.

Six passenger flights were taken during the week.

AT THE HALL SCHOOL.

The following pupils received instruction:—

With Instructor P. G. Allen (late R.F.C.): Lieut. Armitage, Messrs. Gaskell, Pennell, Collier, Robinson, Capt. Deane, Messrs. Dickson, Rayne and Rand.

With Instructor Anstey Chave (late R.N.A.S.): Messrs. Cowney, Hooker, Rochford, Cosgrave, Smith, Duncan, Mahoney, Glegg, Milburn, Halliday.

With Mr. H. F. Stevens: Messrs. Dodds, Collins, Cook, Sepulchre.

Certificates were taken by Lieut. Cooke, Messrs. Arnsby, Sepulchre (test A), Collins, Cook.

BOURNEMOUTH.

THE BOURNEMOUTH SCHOOL OF FLYING.

Instructor for the week: Mr. S. Summerfield.

Pupils rolling: Messrs. Adamson, Kennedy, J. L. Barlow, Brandon, Gordinue, Pritt.

Straights alone: Messrs. Smith, J. Wilson, C. Wilson, Morley, G. Mouton, Morris.

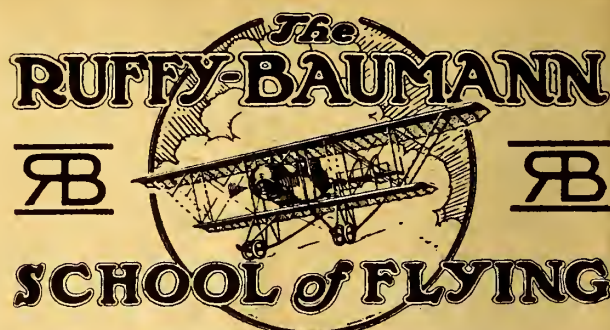
Half circuits alone: Messrs. Simpson, Dubois, Meeus, Devos, W. Mouton.

Eights or circuits alone: Messrs. Dubois, Meeus, Devos.

Certificates were taken during the week by Messrs. Dubois, Meeus, Devos.

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BY GEOFFREY de HOLDEN-STONE.

Ideals are mostly the timely conceptions of great minds and the adaptations of little ones, usually when most of their value has been wasted. I know of no more characteristic example of this in motor-design than the concentric valve notion; which, as Dieter of New York found, and Leon Serpollet somehow missed, is no less useful in flash generator-steam practice. However, I should point out that apart from the fundamental pot-lid object of maximum valve area and minimum lift, combined with the roundest unpocketed combustion space, the root idea of all these devices is that the incoming new charge shall keep the exhaust-valve cool, and in so doing, be thinned a little by warming just at the point of entry. All of which duly occurs, the only question being whether petrol is not saved at the expense of power.

THE PANHARD CONCENTRIC VALVE.

Be that as it may well be in most cases, the design of the Panhard device is so far interesting in ostensibly realising the objects of concentric-valve practice to the full. For wide as the detachable breech-block casting or culasse is, the huge bell-shaped exhaust valve which actually seats on the breech opening of the cylinder is wider still. Obviously, the defect here is that the cylinder must come down every time this enormous valve needs grinding in; whereas the valve might just as well have taken a seating in a slightly widened culasse, and been detachable with it, as in the case of the Dansette-Gillet. Still, this culasse is so formed that the springs are not only remote from the action of the exhaust gases, but are positively isolated therefrom by the circular induction passage beneath. Externally, the casting is so formed as to include the pivot arm for the single rocker on one side, the inlet port on the other, and an opening in the centre for the sleeve-like upper part of the exhaust valve. Inwardly and below, instead of forming a seating for the valve, it is narrowed in to form a guide for the valve body, and combines with the widest extension of the valve to form one side and the bottom of an annular exhaust passage. Inwardly, again, we find a huge inlet valve; which instead of being belled so as to take a wide and easy seating on the under-face of the exhaust valve, is formed as a mere disc seating on its extreme edge. Yet so shaped, it seems singularly liable to distortion, while obviously affording no freer entry to the induction than if it had been concave, with its surfaces parallel to those of the exhaust valve. However, a very free induction is effected through slots cut in the trunk of the exhaust valve—above the guide-part of the culasse, of course; and the centre of the exhaust valve is formed into a guide for the stem of the inlet.

Now, the sleeve-like top of the exhaust valve carries two springs, a larger stronger one externally for its own support, externally, and internally a weaker smaller one for the inlet valve. Above all, a flanged cover—through the centre of which the tail of the inlet valve projects—is screwed on the sleeve-portion; and besides forming the upper seat of the exhaust valve spring, carries a little pivoted rocker, one end of which bears on the tail of the inlet valve, while its other, or free, end extends over the end of the main rocker, and at right angles to the latter.

How It Works.

Just here we notice the distinctive and special combination of this larger outer exhaust valve spring and the single cam employed. The upwardly acting compression of the one is *always* in excess of what is needed to close the exhaust valve, and the size and shape of the other is such that—the tappet rod being duly adjusted—the rocker is perpetually under compression at both ends, and so lifts at its free end when the tappet roller drops on the flat profile of the cam. Thus while the roller is on the wider profile and the ramp of the cam, the rocker end is depressed sharply downward to open the exhaust valve which carries the inlet valve with it, the moment the roller leaves the ramp and

comes on the flat profile, the exhaust valve closes, but the free rocker end goes on lifting, and in so doing lifts one end of the smaller rocker, which at once depresses the tail of the inlet valve.

AND THE EFFECT THEREOF.

So far as the mechanism of this concentric valve is concerned, the result is clearly effective. Physically, however, it seems obviously defective since there is no overlap of the valve-action; that is, not even the shortest period in which both valves are open to relieve the pressure of the gases as rapidly as possible, and allow the outstroke of the piston to create increasing minus pressures for a full induction with equal rapidity. With so large an exhaust valve, that relief should have occurred effectively enough. But has it? With a bore of 110 mm.—over 4 inches—and a stroke of 140 mm.—nearly 5½ inches—and a speed of 1,100 r.p.m., there must be something amiss to get no more than an average of 10.3 h.p. per cylinder. That something I suggest—in the case of most others as well as the Panhard concentric valve—is the lack of a series of *échappement anticipé* relief-ports in the usual place, a little above the end of the outstroke piston-travel: a simple expedient that has never actually been tried in this combination of valves.

A BELGIAN EXAMPLE.

While on the subject, too, it is interesting to note the very original combination valve that was fitted to the solitary attempt at aeromotor production of the Société Anonyme Pipe, of Brussels—exhibited in Paris a few years ago. As a design, one must admit that this was one of the most promising; embodying as it apparently did, every feature of mechanical and physical efficiency. Except the one that mattered most, adequate cooling, the lack of which led to immediate and hopeless failure. For as was evident at once, instead of being air-jacketed and having the air drawn through closed jackets from the top to the bottom, so that cylinder heads and valves should get the first flush of cold air, the cylinders were merely skirted, so that no strong air-current could possibly be created, and what little air could reach the cylinder bodies was thoroughly heated long before it could get near their heads. The eminently accessible and well-placed concentric valve, however, —hereafter illustrated—was seated in a detachable cylindrical cage, ported above for the induction and below for the exhaust. Inside this again, and carried freely on the valve-stem, was a sleeve-valve fitting close to the cage, and opening or closing both sets of ports alternately. This it did, because the action of the spring caused it to hold the induction ports automatically closed during three periods of the cycle; that is, until the slightly deeper depression of the central valve stem carried it down to close the exhaust ports. Given then this valve, an angle of 60 degrees instead of 90 for the cylinders, and plain water-cooling, or flanges and shrouding for forced draught after the Renault or De Dion fashion, this design might well afford a useful type of aeromotor that would pay for its adoption by licence or plain piracy under the cover of due patent law formalities; a bit on account, so to say, of Belgian indebtedness generally.

Then again, one would ask—since while the possibilities of concentric valves are theoretically and practically undeniable, yet equally undeniably they seem to have fallen out of favour, no one seems to know why—has the question of appropriate steel for the purpose been duly studied? The probability is that it has not. Yet no point in aeromotor construction is of more vital importance; albeit we see its neglect so clearly illustrated in the case of that hopeless abortion, the R.A.F. motor; which may be guaranteed to stretch and distort its valves beyond recovery inside a flight of ten miles or less. Given such study, however, there cannot be much amiss with the concentric principle, since the Bailleul valve ran without a fault through the two thousand miles of one Circuit de Lyons years

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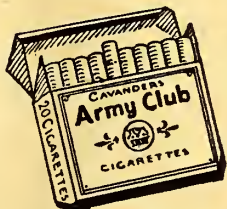
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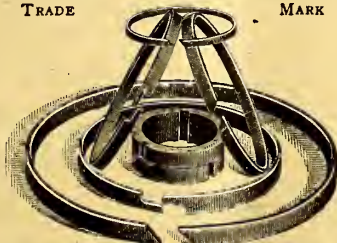
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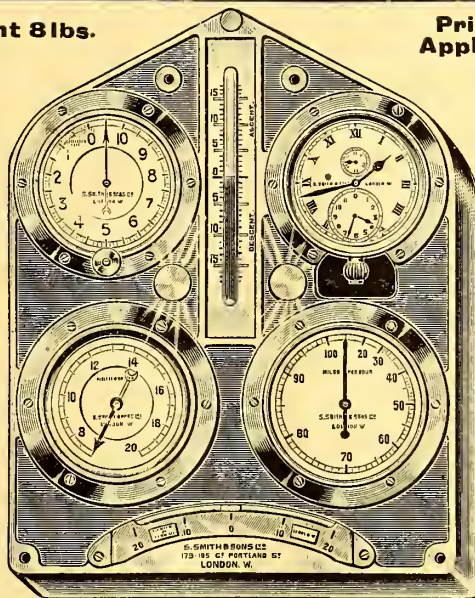
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ago, under the worst conditions ever experienced on that always arduous route. It can hardly be any question of lubrication, for although the exhaust valve portion must needs be more or less of the sleeve type, it is always an easy fit where it touches at all, and the movement is a sixth of an inch usually, a quarter at most; at any rate, not more than 20 feet per minute at 1,000 r.p.m. Surely, even if we take into utmost account the imminence of valveless two-stroke practice for aeromotor work, it is worth while to give the greatest attention to the concentric-valve proposition, in order to make the best of the four-stroke cycle in one of the few remaining directions of improved efficiency.

OTHER PANHARD PATTERNS.

Resuming discussion of Panhard models, however, there is much rumour, but little exact detail, concerning a new twelve-cylinder V-type of enormous power which has already passed its bench-tests; with what success is not yet announced. But another better-known, which, though essentially of the motor-car type, has its distinct points in the way of compactness and clean design, is the 100 h.p. eight-cylinder V-type, which is made up of two monoblocs of four cylinders each. One notable feature of its design is that radiator flanges are formed lengthwise on the external plates of the water-jackets; the casting on this side being open from end to end; the plates in question carrying inlets for water circulation on an unusually generous scale for so comparatively small a motor. The dual induction—via two large omnibus castings—is also good of its kind, the castings being formed into plates beneath the valve-chest water-jacketing. On the other hand, the defect of the design is that the exhausts lead inwardly of the V: whereas—especially in such an openly cored easy casting, they might as easily have been run through the casting outwards into two, or even four, outlets, and so have freed the interior. Otherwise, the feature of the design is that an extension of the central cam-shaft carries the propeller, in the fashion of the Sunbeam and a few others, the crank-shaft itself being thus relieved of any end strains and their accompaniment of heavy thrust-bearings. Still, the needs—and still more the contingencies—of war service are such that one is surprised that another of the firm's best designs has not been employed, which is equally compact: this being the one in which the cylinders are actually cast in singles, but with the jacket faces open at the sides—in the manner of Spyker and Maudslay—and faced against each other with ground metal joints; so that while the water-flush is as continuous and the compactness of the assembly, as obvious as in any monobloc, a damaged cylinder can be readily dismantled and replaced with rather less trouble than one

of the conventional type of singles with separate water and induction joints to be broken in each case. Furthermore, this last type has the distinct advantage from an aeromotor standpoint that no cylinder can fly off, and that the mass weight is reduced without cutting down the strength of any part.

THE QUESTION OF CARBURATION SYSTEMS?

Now that the conditions of actual war service—even more strenuous than had ever been previously imagined—have wholly gone beyond, and, in many cases, falsified, those of the aerodrome, it may be well to consider certain judicious revivals from that point of view: especially in the all-important consideration of the special effort, the ability for which seems too frequently lacking. We must look for the reason, surely; and I maintain that we are most likely to get soonest to the root of the matter if we review the question of carburation rather than anything else.

On the road, or afloat, we may expect any good make of carburettor that suits its motor to adapt itself readily to any slight variations of atmospheric conditions as may prevail from day to day, and continue to give a constant mixture and power-result accordingly. But since it is ridiculous to compare such variations with those that are known to occur, not only from one altitude to another all in a few minutes, but at the same altitude, it seems equally ridiculous to expect the same sort of device, or even the system it represents, to work with anything like the desired efficiency.

So much so, that the very system—quite probably—which would be hopelessly wrong or inadequate for car or motor-boat, may be actually the best solution of the aeromotor's inherent trouble. Now it happens to be the fact that any number of hill-climbing competitions with motor-cycles have proved that for the special demand of a burst of speed nothing has been so invariably and immediately effective as direct injection-dosage of petrol into the cylinder, atomising it mostly upon the inlet-valve. Clearly, it need be no more difficult to control the amount of this petrol-feed from time to time, or even momentarily, than to control the amount of a more or less constant mixture by throttle. Certainly it is the more direct method of control, since it is upon the one constant factor, the petrol itself.

The air-supply, on the other hand, may be depended upon to be inconstant aloft, in quality at any rate, if not in actual volume. Let it then vary as it will, since we cannot prevent it doing so. It seems to me that if we endeavour to meet its vagaries direct, we may be wrong sometimes, but just as likely right most times, while with no direct control upon either air or petrol we are sure to be wrong nearly all the time.

(To be continued.)

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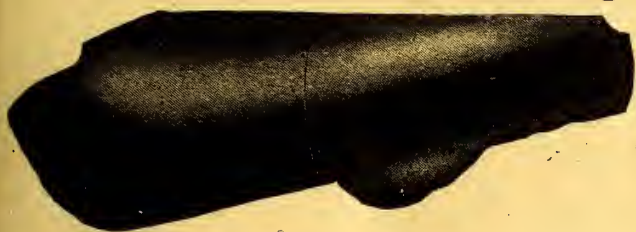
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It speaks volumes for the mental capacity of Mr. E. J. Mitchell, the head of the firm, that he should have shown such foresight, and, as history has developed during the past two years, it is now evident that he has done great service, not merely to a struggling industry, but to the whole British Empire.

I say this with a full sense of all it implies, for only those who have been through the early days of aviation and have seen machine after machine wrecked through tyres bursting or pulling off the rims, when landing or starting, can realise the safeguard afforded by reliable tyres.

The aviator who has become a "complete airman" in a week is enabled by the Palmer method of attachment to slam his machine about anyhow on any sort of ground, to land with a side-drift, or jerk an aeroplane round in its own length, and he seldom realises how much he owes to the staunchness of his tyres in neither bursting nor pulling off under brutal treatment.

Even the very finest Service pilots are compelled on occasion by the exigencies of active-service aerodrome space to handle their machines with unseemly brusqueness on the ground, and he would be a brave statistician who would venture to calculate the number of times Palmer staunchness has saved more or less of a smash.

And though in war-time one cannot make known all the recent activities of the Palmer people, one can say that their latest developments are as interesting, and as valuable, to the Services and the Industry as their earlier efforts.

It is, of course, well known that the Palmer Co. supply the complete wheels for aeroplanes, and not tyres and rims alone. This assures the user that there can be no mishaps through using wrong hubs, or spokes, for any given tyre and load—a very important point in fact. If anything does go wrong the responsibility rests on the Palmer Co. alone, and the scarcity of mishaps is the firm's best justification for their policy. The latest Palmer hubs have a neat and simple floating bush for a bearing, which practically makes seizing-up an impossibility, and also facilitates the use of stock wheels on machines with axles of different sizes. The brake

system fitted to the Palmer wheels is also remarkable for its neatness and simplicity.

The new method of fixing the streamline shields to the sides of the tyres is well worth investigating, for the difficulty of the attachment hooks becoming automatic detachers is now solved.

There are two matters to which users of aeroplane tyres should give their attention in their own interests, though it may not be particularly in the Palmer people's interest to mention them.

One is that Palmer aeroplane tyres are intended to carry big loads in proportion to their weight, and do it most successfully, but they are not designed for road use. Consequently if people will insist on towing aeroplanes at high speeds or for long distances behind motor-cars, they must expect the tyres to cut, puncture, or grind through on the tread. It is much cheaper to have a spare pair of wheels with heavy-treaded tyres, and to substitute them for the others for road haulage.

This information may sell a few pairs of Palmer aeroplane tyres specially treaded for the road, but it will probably save the necessity for buying several pairs of the lighter tyres.

If so, I trust that Mr. Mitchell, and Mr. G. A. Parsons, the able manager of the Palmer Aviation Department, will forgive me for spoiling their trade, in view of the fact that if a light aeroplane tyre bursts on the road and wrecks an aeroplane it is quite possible that the owners may blame the tyre for bursting instead of blaming themselves for using a tyre for a job for which it was never intended.

The other matter concerns standardisation of tyre and wheel sizes. This is a matter which might well occupy the attention of the Society of British Aircraft Constructors. At present the Palmer Co. have to make close on 60 different types of wheels, and nearly a dozen sizes of tyres. Now this means enormous waste of time and diffusion of energy in making lots of sizes in fews instead of few sizes in lots. There should be one size for scouts, one size for reconnaissance or school machines, one size for the bigger and heavier fighting machines, and one size for the aerial pantechmicons beloved of some official minds and by most "aeronautical experts." The aeroplane designer could then design his axle to the most suitable stock wheel. In this way the output could be vastly increased without increasing the number of men or machines employed thereon.

The consideration of these points is recommended to all users, designers, and constructors of aircraft for their own ultimate good. Meantime, if anyone in the Services or in the Industry wants a liberal education in the whole question of aeroplane tyres I recommend him to go and see Mr. Parsons at 119, Shaftesbury Avenue, for he will certainly learn many things to his advantage.—C. G. G.

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A PRE-WAR COMPOSITION.

The booklet entitled "The Aviation Pocket Book, 1916," has apparently been written by a motor-car expert, if one may judge from the contents. At any rate, Mr. Borlase Matthews is not a name which one recognises readily as an authority on aviation. It is not surprising therefore that Professor Lanchester is quoted copiously for aerodynamical formulae, which unfortunately are based chiefly on model tests, so that their value at times is problematical. Also, unfortunately, most of Professor Lanchester's published researches were made many years ago, so that the data are a little out of date in places, and the introduction of M. Eiffel and Dr. Stanton's results does not make the issue any more lucid.

The examination of wing curvature and the conclusions drawn therefrom are based on machines which were obsolete at any time between 1909 and 1912, and it is difficult to see how far this information will be of use during 1916.

An elaborate set of tables is introduced, giving particulars of alleged standard aeroplane fabrics. The author is apparently unaware that the rubber fabrics quoted went out of use in about 1911,

and he has apparently never heard of aeroplane dope, although he alludes vaguely to shellac varnish for treating fabric.

An imposing chart is given showing particulars of various engines, but unfortunately at least 80 per cent of the motors quoted are obsolete, and many are extinct, and the writer has apparently never heard of the Sunbeam, Beardmore, Le Rhone, Clerget, Monosoupape Gnome, Mercédès, Benz and Argus motors, all of them pre-war engines, although curiously enough the War Office aero engine competition is mentioned in another part of the book.

Most of the really accurate information can be found in the ordinary engineer's pocket-book, from which apparently much of it has been lifted bodily, if one may judge from the mass of superfluous data slung in apparently to fill up space. For instance, who in the aviation world could be expected to take an intelligent interest in the modulus of elasticity of slate, except perhaps an unfortunate pilot who was forced to land in a hurry upon the roofs of a London suburb! Frankly, a little knowledge is a dangerous thing. The pocket book concludes with a glossary of technical terms which contains many words unheard in aeronautical circles, and omits still more which are in regular use.

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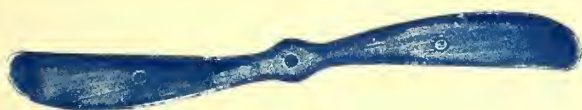
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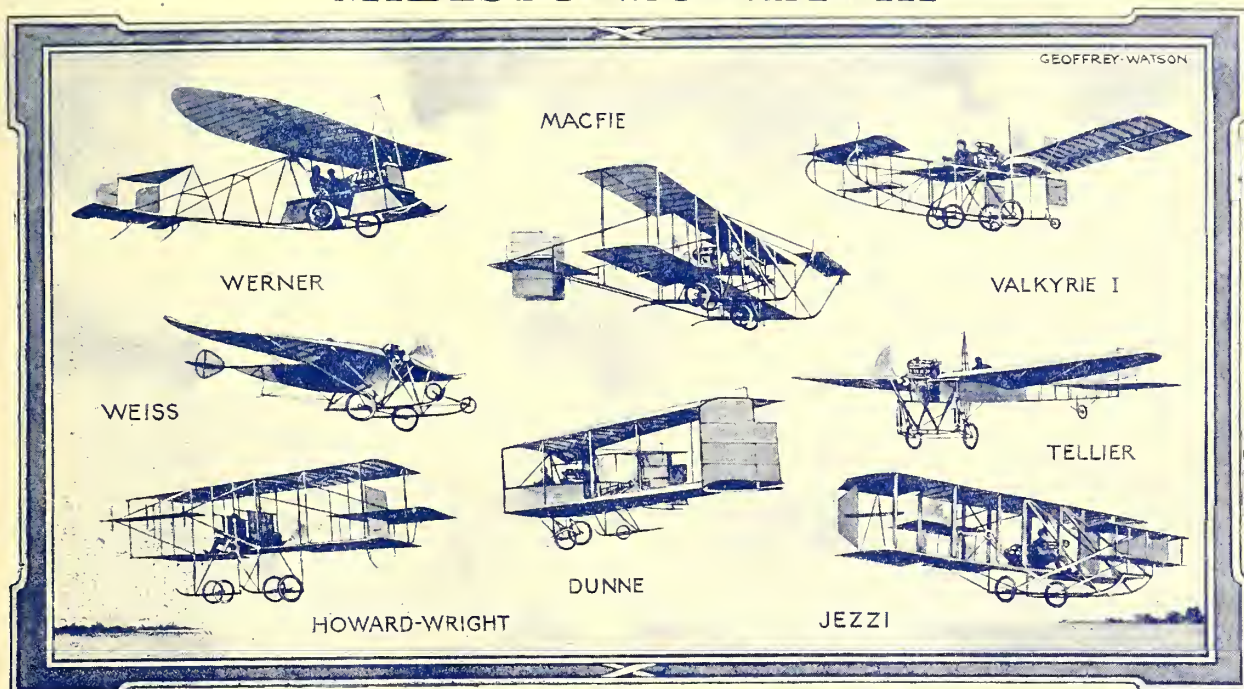
Edited by C. C. Grogg

Vol. X. No. 19

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MILESTONES—XXVIII



A number of interesting machines were built in 1910. The Werner monoplane with E.N.V. engine and combined shaft and chain drive was a variant of the de Pischoff. The Macfie biplane was a conventional biplane with 50-h.p. Gnome and various useful originalities. The Valkyrie monoplane, another British machine, was a "canard" monoplane with propeller behind the pilot and in front of the main plane. The Weiss monoplane was a good British effort at inherent stability. The Tellier monoplane was a modified Bleriot with Antoinette proportions. The Howard Wright biplane was a pusher with a large lifting monoplane tail. The Dunne biplane was another British attempt at inherent stability. The JeZZi biplane was an amateur built twin-propeller machine, which was the first attempt at effective streamlining.

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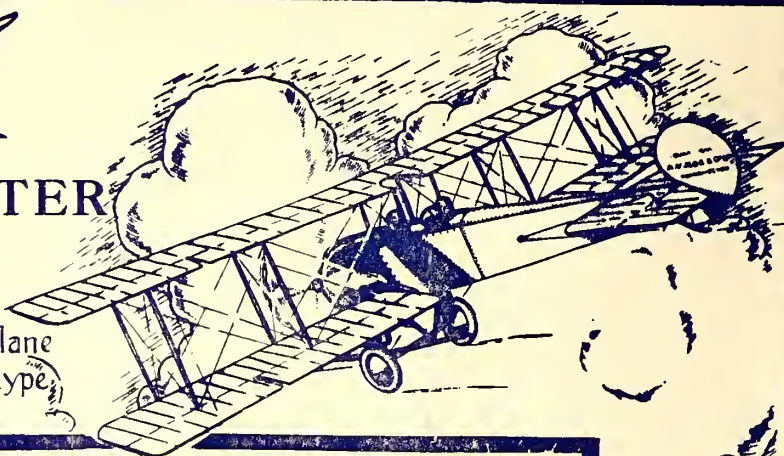
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ON REFORMING THE R.F.C.

Those who are at all on the inside of things cannot help being struck by the remarkable progress which has been made in the Royal Flying Corps during the past few weeks. One cannot, of course, indicate precisely what the improvements are, for their disclosure, if not actually giving useful constructive information to the enemy, might at any rate save the enemy from the shock of sundry nasty surprises which he is likely to receive. One can, however, say that the R.F.C. owes nothing to the Derby Joint Committee for these improvements, except that the resignations from that Committee strengthened the hands of the reformers.

The speed and ability with which the reforms are being made reflect the greatest credit on certain very able officers recently appointed to the War Office. Why those officers ever attained to positions of power is one of the mysteries of the war, for everything they have done has upset the cherished traditions of someone or other formerly in favour in high places, and long before they were appointed it was known that they were personally antipathetic to the evil influences which have hitherto hindered the proper development, and especially the proper equipment, of the R.F.C. So eminently suitable are they for the work they are doing that one feels they must have been appointed by mistake, for when one looks at some appointments in the Flying Services one almost begins to believe that there is a King's Regulation against putting the right man in the right job, and that His Majesty's Stationery Office must keep a special stock of requisition forms relating, in correct official language, to "Pegs, square, one in number," on which those in high places may indent for the filling of "Holes, round, one in number."

The only alternative explanation of these appointments is that someone very high up indeed in the Army, high enough to do, or have done, the things which he believes to be necessary, has been so disturbed by recent agitations, in the House of Commons, on sundry platforms, and in a few—a lamentably few—newspapers, that he has turned a real brain, and not a mere Advisory Committee of "experts," onto the subject, with the result that he has found something of the truth and has acted accordingly.

One can only hope that this inspired personage, if he exists, may be induced to go a good deal further. The R.F.C. tree still needs a great deal of attention. Not only does it need a little clearing at the top, and a great deal of digging up and cleaning at the roots, but it needs judicious pruning all the way down. Even with my own limited knowledge of the Corps I could suggest at least a dozen officers, ranging from Wing-Commanders downwards to Flight-Commanders, whose removal would be an immense advantage to the efficiency and future growth of the Corps.

Also, many existing appointments should be revised. A really good man may easily be put onto a job for which he is not suited, and not only make a mess of that job

but hang up work in other departments which depend for their efficiency on that job being properly done. Yet that same man might be excellent on different work. A man might, for example, be a heaven-sent equipment officer, and yet the worst Wing-Adjutant who ever existed, or he might make a hopeless mess of both jobs and yet save dozens of lives by high engineering knowledge if put onto Aircraft Parks.

I know cases myself where people have been Stellenbosched, or have even left the R.F.C., simply because they were never given a chance of doing the job about which they knew most, or of doing their jobs in their own way, free from interference. Yet I know those men to be very much abler in their own directions than many of the men who are senior to them and who are making a mess of the jobs they could have done faultlessly.

One hopes, therefore, that those who now really control the destinies of the R.F.C.—it matters little whose name appears on the brass plate, so to speak—will give special attention to the pruning and lopping and clearing process, and will get rid of many of the people—soldiers and civilians alike—who are hindering progress and efficiency, and that they will give special attention to putting the right men into the jobs for which they are best fitted. It has taken something like three years for them to get where they are themselves. If they can make equally good appointments in the next three months to all the positions below them they will have deserved well of their country. One ventures to wish them every success in the good work which they have begun so well.

THE MACHINE QUESTION.

One of the most crying needs of the R.F.C. has always been an adequate supply of machines which are really fit for active service, and this is a matter which the new chiefs can tackle with every prospect of success, knowing as they do, of their own experience, what is needed by the man who has to cross the lines.

There still seems to be some misunderstanding in certain departments on this question which should be cleared up. For example, sundry friends of mine who wished to tender for aeroplane parts, and are capable of excellent work, have been turned down because the department to which they applied was of the opinion that the R.F.C. had more aeroplanes than engines. Yet no less a personage than General Henderson has insisted on occasion that the R.F.C. has more engines than aeroplanes.

Both cannot be right. One knows there is a kind of mausoleum for new aeroplanes—a sort of cemetery for the stillborn—known officially as Aircraft Ordnance Stores, where brand new engineless aeroplanes of obsolete types, the product of ill-considered contracts, sit by the dozen in an old factory which ought to be building and not storing, and that they sit there with the rain dripping through the roof onto them, and the heat shrivelling the fabric, till they are sufficiently rotten to be taken out and burnt.

Also, one knows that the Royal Aircraft Factory has given out vast orders for engines of untried type which

can never be of any use when built, and that still vaster orders are out for engines which have been so well tested that no experienced pilot cares to trust himself outside gliding distance behind the German lines on them, and so well tested that the R.A.F. itself finds it necessary to order complete cylinders as "spares" in hundreds at a time. Imagine, if you can, a car manufacturer perpetuating a type of engine which had proved so bad under road conditions that it was necessary to supply two or three sets of new cylinders per annum to every purchaser.

Also, one knows that there is in the R.A.F. a corner of a big shed full of obsolete engines, 50-h.p. Gnoms, which ought to be lent or sold cheap to civilian flying schools to help them to train new pilots; obsolete 80-h.p. or 100-h.p. Greens, which ought to be used in motor-boats or on lorries; odd Anzani, quite useful for school-work; and old Renaults and other things, useless for active service, but quite fit for the training of the young or for some other use, and so usable instead of more modern engines needed so badly on active service.

One assumes that all these engines, whether obsolete, dangerous but in use, non-existent and untested but on order, are all counted as being "on charge," and that the "spares" are also counted in, on the argument that so many spare parts make a complete engine. Doubtless this total is supplied to Mr. Tennant, and he is thus able to maintain that because there are more engines, on such reckoning, than there are aeroplanes in the possession of the R.F.C. (Military Wing)—leaving out those in Aircraft Ordnance Stores, which are not R.F.C. (Military Wing) property, but Ordnance Department, presumably—therefore the supply of engines is more than adequate, and there is no need to worry, and that there is still less need to encourage any patriotic gentleman who happens to have an engine which is better than the R.A.F. engine (which is not a difficult achievement) and is prepared to build and test it at his own expense.

One commends this aspect of the question of R.F.C. efficiency to the new brooms at the War Office, who have begun so well.

ON PRODUCING EFFICIENCY.

The efficient production of aeroplanes and engines is perhaps the thing which will take the most tackling by anyone who takes the job in hand, whether he be a new broom at the War Office or Admiralty, or the Chief of the Construction Department in a new Air Service.

There is, for example, the matter of pure factory organisation. It is true that organisation for rapid production is not the strong point of most English works managers, and that the British workman hates being organised even worse than being tied down to definite drinking-hours. No free-born Englishman would ever consent to be organised so that he could do three times his usual amount of work at half the trouble to himself and take twice the money for it. He would much rather stay as he is than let his employer show him something new and make more money out of it. That is the kind of fool the British workman is. Yet, whether by "conscription of labour," or whatever means, the British workman has got to be taught to double or treble his output before he can pretend that he is doing his fair share towards winning the war. And he has got to go on doing it after peace breaks out, so as to pay for the war.

It would pay the Chief Constructor very well to import a few proved and tried American factory organisers (not American works managers, who are quite different persons) to visit our aircraft and aero-engine factories and report to him why the output is not bigger.

One fears that aircraft factories are by no means free from the charge laid against other munition factories of being the refuge of the slacker and shirker—or the *embusqué*, as the French call him. Thousands of young men between 19 and 30 years of age could be combed out of the industry and replaced by married men who have been called up or inveigled into the Derby Scheme by specious promises.

One has only to watch the hands coming out of any aircraft factory to see the enormous number of them who are of military age, and when one recollects what those same factories were twelve or even six months ago one realises that only a very small proportion of those able-bodied shirkers can be called skilled tradesmen.

Any mature man of between 30 and 40 years of age could learn all these fellows know in a week or so. Most of them are mere machine-minders. And because he is of mature mind and has a wife and children for whom to work he will apply himself more industriously to his job. He will not want so much time off for football matches and cinemas and public-houses. Personally, if I were a works manager, I would not have an able-bodied unmarried man under 40 or a married man under 30 in the shops, except perhaps a few whom I had had with me

before the war or whom I knew to have been in the aircraft industry—such as it was—then, and whom I knew, therefore, to be more valuable at such work than they would be at the butt of a rifle.

CONVINCING THE WORKER.

Yet to speed up factory output it is advisable that the more intelligent workmen should be convinced that the work they are doing is likely to help in some way in winning the war. I always sympathise heartily with a certain old aircraft hand who was working very lackadaisically on a seaplane which had to be altered to suit the unproved theories of an Admiralty expert. One of us remarked that he did not seem to be exerting himself unduly to get it finished. His reply was simply: "A feller'd work a sight 'arder if 'e thought the pore blighted thing 'ad got a dog's chance o' flying."

A good deal of slackness in the works is due to the fact that the men know that the work they are doing is no use. How, for example, can any aeroplane erector feel the enthusiasm in putting together a B.E.2c, or even a really good school machine such as a 70 Maurice Farman or an 80 Avro, which he would feel when working on one of the new Sopwiths, or Martinsydes, or de Havillands, or one of the big fighting Maurices, or an Avro with an engine worthy of it, or a twin Caudron bomb-dropper? And an enthusiastic worker will easily double the output of one who has lost interest.

Similarly in engines. Can a man working on cylinders ordered as "spares" possibly raise any enthusiasm when he knows that these cylinders are exactly the same as those which scrapped themselves? The mere name "spares" is enough to strangle his enthusiasm, or even his patriotism, for no experienced motor mechanic would ever believe in the sanity, honesty, or ability of any department which did not immediately throw out any engine which had to have cylinders replaced. To his simple mind anyone who went on using an engine whose cylinders habitually cracked and blew out—as official cylinders do—must either be mad, or grossly incapable, or up to the neck in graft of some sort.

A CASE IN POINT.

One of the most delightful R.A.F. engines stories—if it were not for the underlying tragedy of aviators lost by defective or underpowered engines—concerns a big order for connecting rods. A matter of 2,000 rods had been ordered from a certain motor firm and had all been finished—beautiful jobs they were too. Then the R.A.F. inspectors discovered that they were one thousandth ($1/1000$) of an inch under size in the web, and promptly scrapped the lot.

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The maker pointed out that the variation was so slight that it could only be detected when the steel was at a certain temperature. Ordinary contraction and expansion between night and day made all the difference, and that if the rods had been measured on a warm day they would have been passed by the inspector.

Anyhow, none of this convinced the stipendiary geniuses of the R.A.F., and the unhappy maker was sent home lamenting, the poorer by the cost of 2,000 very expensive and perfectly good connecting rods.

Then came the real joke. A couple of days later there arrived the drawings for a new R.A.F. engine of higher power. It was some 10 millimetres bigger in the bore, and I think it had more cylinders, but that is immaterial. Anyhow, 10 mm. more in the bore means a healthy addition to the kick of the explosion.

The maker examined the drawings with care, and then discovered to his glee that the dimensions of the connecting rods were precisely the same as those given on the drawings for the smaller cylinders and pistons.

He is still trying to find out why the full-size connecting rod had sufficient margin of strength to stand a piston 10 mm. bigger than that for which it was originally designed, and yet became dangerous when $1/1000$ of an inch was taken off the web—where, in fact, $1/100$ would have made no practical difference—when used with its original piston.

WHAT THE WORKMAN THINKS.

It is official imbecilities of this sort which break the heart of the intelligent British workman, knock all the enthusiasm and patriotism out of him, and make him into a slacker and waster, for he knows that it is the official people and not his shop managers who make the idiotic mistakes which cause all his good work to be wasted, and he knows that although the money is going into his own pocket, it is coming out of the Nation's pocket and is adding to the National Debt. He assumes, not without reason, that the official imbeciles who do these things must have been appointed to their jobs by superior imbeciles, and he knows enough of the way the higher situations are allotted in some firms for whom he

has worked, to suspect that these superior imbeciles have been given their jobs because they had friends in high places, and not because they have any personal qualifications for them.

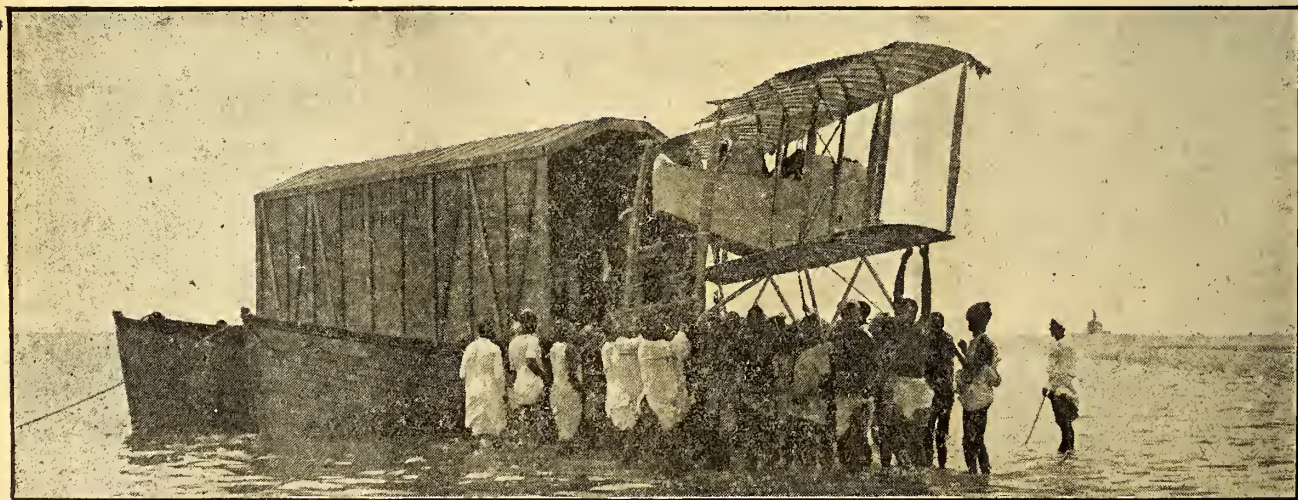
MICROSCOPIC SENSE.

Another little story of the R.A.F. may serve to drive home the utter silliness of official methods. For some perfectly scientific, and exceedingly foolish, reason, the gudgeon pin of an R.A.F. engine is made with three different diameters, instead of being of the same diameter all the way along. That is to say, one end, which goes into the piston-wall, is a millimetre or two smaller than the centre part, which takes the small-end of the connecting-rod, and with it takes the whole drive of the explosion. This again is a millimetre or two smaller than the section which fits the hole in the opposite wall of the piston. Now the length of these different sections is set out with great exactitude in the drawings, and has to be correct to something like $1/1000$ of an inch.

The other day some hundreds of gudgeon pins, made at great cost out of highly expensive material, were scrapped because one of these sections was $1/500$ of an inch too long—or some equally absurd amount—in all the pins, owing to someone having made some microscopic error in setting the grinding machine. It did not really matter in the least, because the small-end of the connecting-rod would have to have far more end-play, in the nature of things, than such a small thing as that error could possibly affect.

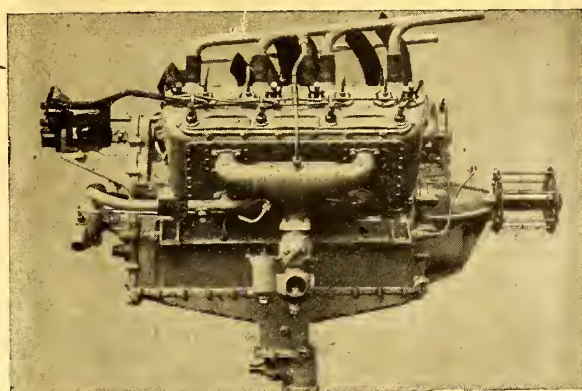
The proper way to arrange a gudgeon connection is to have the pin the same diameter all the way so as to simplify turning and grinding, to have the bearings in the piston where they will pick up oil off the cylinder walls, and then to fix the connecting-rod to the centre of the pin. It can be made a simpler and lighter job all round than the usual way of fixing the pin in the piston and having the bearing in the connecting-rod, but even people who do it that way do not go in for the extreme imbecility of making the pin with three diameters, and thus nearly trebling the work on it.

This is an excellent example of the R.A.F.'s idea of standardisation. Their notion is to design a thing as difficult to make as possible and then induce the R.F.C. to order it in vast quantities before it has been tested. Whereas, the essence of standardisation is to take as many existing standard fittings as possible and then design round them. But that is a matter for a further discourse. To put it in another way, the R.A.F. always designs the foot to fit the boot, instead of designing the boot to fit the foot. And apparently for no other reason than one of three. (a) Sheer congenital foolishness; (b) An imbecile desire to show off cleverness which the Staff thinks it



"Somewhere in Africa."—Taking a Caudron ashore to attend to the "Königsberg."

8
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150
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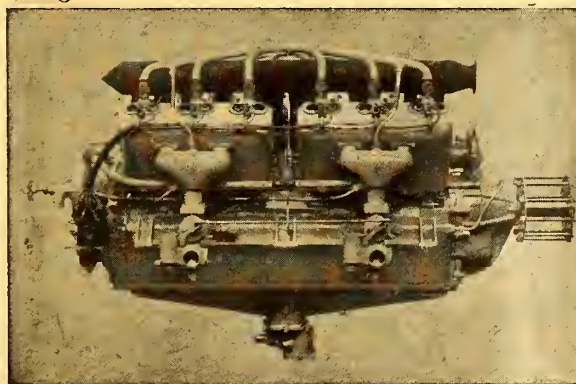
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possesses, and does not; (c) A desire to be different from everyone else, so that in the end all competitors may be frozen out because none of their goods fit in with official designs.

If the new brooms at the War Office desire to increase output their first task is to clean the Augean Stables of all this raffle of pseudo-science and to put plain everyday engineers in charge. There are several little private workshops to-day rebuilding for the Flying Services engines damaged on service. There is not one manager of one of those shops who is not doing more real good for the country than the whole staff of the R.A.F., plus Advisory Committee and N.P.L. thrown in, because they are turning out practical work, doing it well, and doing it efficiently.

THE BARRIER.

One cannot expect staff officers at the War Office to find out these things for themselves, because their uniforms at once frighten civilian manufacturers into dumbness. No matter how foolish a manufacturer may think R.A.F. designs to be he is afraid to say so to any official person for fear of having his orders cancelled, and I can scarcely picture to myself any English manufacturer deliberately throwing away profitable orders just because he knows the stuff he is asked to build is bound to be either a rank failure from the start or is a danger to the unhappy men

who have to use it. If all manufacturers had consciences which worked on patriotism to their country, instead of to their shareholders, we should see a very big proportion of our factories idle because their managers refused to make useless muck to official design—Government control or no Government control.

The Aeronautical Inspection Department has succeeded in winning the esteem and confidence of manufacturers more than any other Government department which I have ever met, and I strongly counsel manufacturers to confide more and more in that department. It is there to guard against official mistakes as well as constructors' tricks, and it already forms a very useful intermediary between the mere "Trade" and the higher authorities of Whitehall.

There seems still to be room, however, for an "intelligence department" which will keep these higher authorities in close touch with the obstacles in detail which clog output and prevent efficiency. At present there are too many intermediate steps between the constructor, or producer, and the flying officer, or consumer. And, after all, those are the two persons who matter most, and who depend mutually on one another's efficiency. All the rest are really transmitting machinery, despite the brassiest of brass hats. It is just as well to get these facts into something like their true perspective.—C. G. G.

ON RUSES DE GUERRE.

When Mr. Asquith claimed, in the House of Commons the other day, that the present Government has got the confidence of the country he was either stating an untruth with full knowledge, or he was grievously deceiving himself. One gives him the benefit of the doubt. When the Member for East Herts made the plain, blunt statement, "You have not got it," he was stating a self-evident fact, obvious to all who have ears to hear what everyone in the country is saying and to all who have eyes to see the figures produced by the electors of East Hertfordshire, Mile End, and Wimbledon, and even of the Harborough Division. Abstention from voting is as clear a proof of lack of confidence as is an adverse vote.

When Mr. Asquith tried to side-track the issue of this direct contradiction by the rhetorical trick of saying, "Then let this House say so," he was using one of those *ruses de guerre* for which this Government has become famous—or infamous. The immediate reply—carefully unpublished in "Hansard" and in nearly all daily papers—"This House does not now represent the country," was as self-evident a fact as was the first remark of the Member for East Herts.

Mr. Tennant's stretching of the phrase "*ruse de guerre*" to describe and excuse the notorious dummy gun incident is likely to stick to him, and his inept little political trick of stating inaccurate euphemisms, as faithfully as "Wait and see" has stuck to Mr. Asquith and his disastrous failure as a statesman, and every misstatement of which Mr. Tennant is guilty in future, which probably means a large proportion of his political utterances, will be described promptly as either a *ruse de guerre* or a dummy gun.

I feel that I owe an apology to Lieut.-Col. J. B. Seely, C.B. (T.F., Temp. Brig.-Gen.). There was a time when I credited him with being himself the author of the little twists and wriggles with which he tried in vain to extricate himself from the net of questions with which Mr. Joynson-Hicks, M.P., surrounded him before exposing him as publishing untruthful figures respecting the R.F.C. Having met Lieut.-Col. Seely on three or four occasions, I could never quite reconcile the superficial cuteness of these replies to questions with his obvious personal lack of acuteness, but now one is led to think

that he was merely a mouthpiece, for Mr. Tennant's *ruses de guerre* are even more like Col. Seely's than Col. Seely's were.

It is, therefore, in the hopes that someone will endeavour to impress on the Government that wars are won by straight, honest strategy and tactics, and not by mere trickery, that I give hereafter a few samples of the *ruses de guerre* which have prevented this Government from acquiring that confidence of the nation which Mr. Asquith falsely claimed to hold.

WHAT IS A SURVIVOR?

One regrets to find that these *ruses de guerre* are not confined solely to Government officials in Parliament, but seem to appear in official documents issued by Government Departments. For example, we find an Admiralty communiqué on the subject of the shooting down of a Zeppelin at Salonika on May 5th, saying "There were no survivors," and that the ship "came down in flames." The reports from independent sources say that "No bodies were found," which is quite another story, for though it might mean that all were burnt to ashes, or fell into the sea, that meaning is spoiled by the Censor, who has permitted the publication of other statements—that the ship took a quarter of an hour to come down after she was hit, that she was set on fire by her crew, and that the crew apparently escaped into the marshes.

It may cheer the British nation to present to it by suggestion a glowing mental picture of a Zeppelin hurtling to earth a flaming mass after a single shot, the victim of the magnificent gunnery of our matchless handy-man (*vide* daily Press eulogies any day of the week). But it does not increase the nation's confidence in its rulers or its defenders when it finds that it is doubtful whether it was French or British gunnery which, after a lot of promiscuous shooting, so damaged the airship that it had to come down, after which the crew set it alight and escaped—only till captured by the Army, let us hope.

It would be well to let the public know the absolute truth about such incidents, for though the truth came out afterwards, it matters a great deal whether an incident is described correctly when it occurs, or merely as a *ruse de guerre*.



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SAVING CASUALTIES.

In a somewhat similar way much capital has been made out of the figures for German, French, and British aeroplane casualties during the month of April. There is no need to dispute the figures in order to show that they may convey a wrong impression. One need only ask for the actual circumstances which produced those figures.

On a previous occasion we claimed "a marked dominance in the air" at a time when a little consideration would have shown that the absence of German aircraft on the West front was due to their being used in Russia and Serbia, and not to their being chased out of the air in Flanders.

The present comparative scarcity of British casualties is due to a cause perfectly well known to the Germans, but not understood in this country, and this cause should be explained.

It is literally true, as Mr. Tennant said in the House, that B.E.2cs. are still being sent to France. It is also literally true, as he did not state, that the said B.E.2cs. are inferior to the German fighting machines, as the Germans know very well. Therefore the General Officer Commanding R.F.C. in France has wisely decided, after the serious R.F.C. losses of December, January, February, and part of March, that B.E.2cs. shall not be sent out alone on reconnaissance or on bomb raids. Therefore they go out in flocks of anything from half a dozen to a dozen at a time, protected by one or two, or even three, fighting aeroplanes, of which we are now procuring supplies, thanks to the energy and enterprise of mere "trade" constructors and not to any wisdom of the Royal Aircraft Factory or of those R.F.C. officers who have supported that establishment.

By confining the voyages of these flocks to a limited range, and so lightening the load of petrol carried by each machine, they are enabled to fly high enough to be moderately safe from anti-aircraft guns, and the size of the flock and the presence of the fighting machines make them fairly safe against attack by two or three German machines of even very superior quality. If a German is so foolish as to attack, he stands an excellent chance of being brought down by sheer weight of numbers.

WHERE THE WEAKNESS LIES.

Now, this system is all very well, but it can only work until the Germans can spare an equal number of superior machines to meet these flocks. And we learn from Russia of German aeroplanes being seen constantly as much as 100 miles behind the Russian front, which indicates that the bulk of the big German aeroplanes are again on the Eastern front, watching for the massing of the Russian armies for the Spring offensive. Also, Germany is supplying aeroplanes and pilots to Austria as well as to Turkey—as witness the report of the "old British aeroplanes" being shot down "one after the other," when trying to get to the beleaguered forces at Kut. Therefore one assumes that the Germans are not using their best aeroplanes in Flanders, nor are they using many of any kind.

Apropos Kut, the Turks claimed to have captured General Townshend, some 500 officers and over 13,000 men. The British official statement gave 2,900 and odd British troops, some 6,000 Indian troops "and their followers." British papers thereafter talked of the loss of only 9,000 men, carefully omitting the "followers." Is this another *ruse de guerre* to pacify the British people? Is any neutral nation likely to be impressed with our truthfulness after such a quibble? Does not an Indian camp-follower fulfil precisely the same place in the scheme of things as does the Army Service Corps in the British Army? And should we count out the A.S.C. and other non-combatant units if a British army were forced to surrender?

WASTEFUL TACTICS.

Moreover, it is exceedingly wasteful of men, machines, and fuel to send out perhaps fifteen machines and anything between twenty and thirty men merely to do the work that three or four machines and half a dozen men could do if they were properly equipped. The solitary bright spot, like Mr. Asquith's notorious reference to Mesopotamia, is that this system of "flock action" provides useful training for pilots and observers, who will be valuable if and whenever the War Office provides the R.F.C. with aeroplanes as good as those used by the French and Germans.

But for the R.A.F. and its friends in the R.F.C. and Admiralty, such machines, and better, would have been in use by British aviators all over the world ever since the war began. As it is, our pilots and their commanding officers have been compelled to keep their end up by bravery, skill, and readiness of wit alone. And the official people who are responsible have been compelled to save their own faces by such *ruses de guerre* as claiming aerial ascendancy over absent foemen.

It may not be true that the G.O.C. R.F.C. in France has refused to have any more B.E.2cs. sent to France, but he has certainly refused to allow them to go out over the lines without their nurses, and by doing so he has stamped them as unfit for the job of war for which they were intended. And yet the Admiralty and War Office go on ordering the things and the R.A.F. engines as well, despite their unreliability, as proved by the fact that orders for "spares" exceed the original orders for complete engines.

HIDING THE TRUTH ABOUT CASUALTIES.

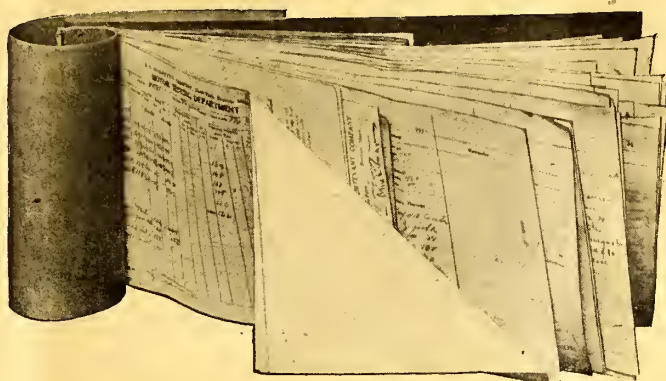
We now turn to Mr. Tennant himself and some of his official *ruses de guerre*. So long ago as April 19th he stated definitely in the House that "the same procedure is followed in reporting casualties at home as in publishing those which occur abroad." It was pointed out in this paper on April 26th that the statement is absolutely false.

Home casualties are not reported at all, which is a grave injustice to gallant officers and men who die in the service of their country. But non-publication is a useful *ruse de guerre* to hide the full extent of the R.F.C.'s casualties, and so to prevent any agitation for better machines, better engines, better system in training, better commanding officers at home stations—which are too often the refuge of those Stellenbosched from the front—better lighting of landing grounds, better signalling systems for night flying, better care of engines and machines, better anti-airship bombs, and all the other things needed to make the work of the R.F.C. efficient and yet safe.

Under the officers recently appointed to the War Office we may expect such reforms to be carried through rapidly, but that does not in the least excuse the hiding of truth in the past. I will not attempt to give a list of those who have been killed on service in this country, but I fancy that one death a week for the past twelve months would not be an unfair estimate.

If Mr. Tennant disputes my contradiction of his statement in Parliament let him attempt to find any casualty list in which appear the names of Major Lumsden, Captain Mapplebeck, Major Penn-Gaskell, Mr. Nichol, Mr. Rebbeck, Mr. Denniston Scott, Major Unwin, and Mr. Bailey, to take at random a few of those killed. Their names appeared in private obituary notices, it is true, but nothing at all is heard of those injured in ordinary accidents or wounded by invaders, or smashed up through landing on badly lighted or badly arranged landing grounds.

Moreover, if an officer or man is wounded or injured abroad, and dies in hospital after arriving in this country, nothing more is heard of him. Is this justice to those who give their lives for their country?



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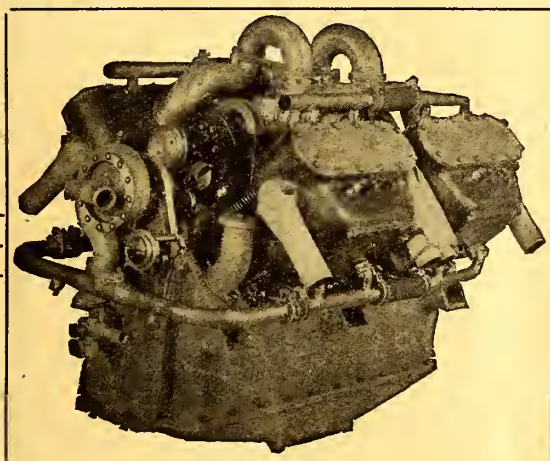
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It is ridiculous to argue that the publication of these names would give any really valuable information to the enemy when compared with the information already given officially. As for example the publication officially week by week until a month or two ago of the names of aviators who passed for their certificates, the machines on which they took them, and the precise whereabouts of the school whereat they were taken, whether naval, military, or civilian.

It is noteworthy that the Admiralty publishes all home casualties in the R.N.A.S., both killed and injured, and as a matter of fact these form something very like half the R.N.A.S. casualties, if not more, chiefly owing, it seems, to the mistakes of the Construction Department, and to curious ideas on the training of pilots.

Mr. Tennant himself informed Germany the other day, via the House of Commons and "Hansard," precisely where certain damage had been done in a Zeppelin raid,

though the Germans themselves never claimed to have bombed that particular place. He also informed Germany in the House that German prisoners in England receive less vegetable rations than do British prisoners in Germany. Precisely what *ruse de guerre* he hoped to bring off by being so free with his information is not very apparent, but certainly such information will be more gratefully received in Germany than would a roll of honour of those gallant men who have died or suffered at home as the result of flying here and abroad.

These are only a few of the points which one might rake up against this self-satisfied Government if one took the trouble and had space to spare, but they may perhaps suffice to show that, as an R.F.C. man put it, somewhat vulgarly but expressively, "coddling the country" is a very poor policy. Honesty is the best policy, whether dealing with men or with nations. It is such a pity that this Government has never given it a fair trial.— C. G. G.

WIRELESS AND AEROPLANES

In a recent interview Mr. Marconi said:—

"As Britain uses so many aeroplanes, as distinguished from airships, an invention which enables an aeroplane to receive wireless messages in the air must improve scouting efficiency.

"The new development will make wireless communication more efficient than ever before, and it will make it more difficult for the enemy to intercept messages and find out what we are doing.

"Aeroplanes have been at a disadvantage hitherto in wireless

work as against airships because, while aeroplanes have been able to send messages, they have not been able to receive them. The reason has been because the receiving signal was too faint to be distinguished, as it was drowned by the sound of the engine. We have now been able to overcome this difficulty."

Asked whether the Germans have anything of the kind, Mr. Marconi replied that beyond doubt the Allies have things which the Central Powers have not, but we ought to improve our organisation.



Behind the Lines.—A village in Flanders photographed from an aeroplane, and showing the church damaged by shell-fire. The rest of the village is hardly touched, except for the houses beyond the church.

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AIRCRAFT IN THE HOUSE.

TYPES OF BRITISH AEROPLANES.

On May 2nd **Mr. Pemberton-Billing** asked the Under-Secretary of State for War whether, as a result of recent criticism in the House on the inefficiency of the Royal Aircraft Factory aeroplane B.E.2c when opposed to enemy aircraft, orders have been given that no more of this type of machine are to be sent to France?

Mr. Tennant: The answer is in the negative.

[A typical Tennant wriggle. There are sundry British flying schools in France, and B.E.2cs may be sent there, and for dispatch work behind the lines. Or for use in flocks on short reconnaissance. But there is a vast difference between that and sending 2cs to France for use on active service in the full sense of the term.—Ed.]

ENEMY RAIDS (CASUALTIES).

Mr. Pemberton-Billing asked the Home Secretary if he will state why, in publishing the recent correspondence between himself and the Member for East Herts, he omitted to include the last letter in reply from the Member for East Herts; whether this omitted letter consented to such publication only when the correspondence was complete; and whether he will also issue this letter to the Press through the Press Bureau, together with his reply, so that all the facts may be accurately communicated to the public?

The Secretary of State for the Home Department (Mr. Herbert Samuel): The remainder of the correspondence was published on April 28th. The reason why the hon. Member's letter dated April 24th was not published with the first instalment was that, although sent by hand, it was not delivered to me until the evening of the 26th, after the earlier correspondence had already been sent to the Press.

Mr. Pemberton-Billing: On a point of order, Mr. Speaker. I wish to ask whether the same unwritten law with regard to the publication of correspondence applies to the correspondence of the members of the Cabinet?

Mr. Samuel: Yes, Sir. I wrote to the hon. Member on Saturday saying that, with his assent, I proposed to publish the correspondence. I had no reply from him until Wednesday, and I assumed, not unnaturally, that he assented.

Mr. Pemberton-Billing: The letter was sent on to me during the holidays. No precautions were taken that it should reach me, and the letter referred to was in the possession of the right hon. Gentleman before he published the correspondence.

Mr. Speaker: The hon. Member is not entitled to make a statement.

Mr. Samuel: I must answer the hon. Member's insinuation that I received his letter before I sent the correspondence to the Press, because it is not so.

Mr. Pemberton-Billing: You received it before the correspondence was published.

LORD CURZON'S REPORT.

Mr. Evelyn Cecil asked whether any action has yet been taken on Lord Curzon of Kedleston's recent Report to the Cabinet, which has been publicly referred to, on the organisation of the Aviation Department; and if he has any statement to make on the subject?

Sir H. Dalziel asked on what Motion will the Air Service Debate take place?

The Prime Minister (Mr. Asquith): My hon. Friends will see from the statement of business which I am about to make that it will not be possible to give a day for this Debate during the present week. I must, therefore, defer my answer to these questions till next week.

ENEMY RAIDS.

On May 3rd **Sir H. Dalziel** (by Private Notice) asked the Under-Secretary of State for War whether he can add anything to the information in this morning's papers with regard to the Zeppelin raid on Scotland?

Mr. Tennant: A Zeppelin crossed the coast line of the East of Scotland last night. This airship dropped seventeen bombs on to agricultural land. The resulting casualties and damage are nil.

Mr. Theodore Taylor: Has the right hon. Gentleman anything to add about the Zeppelins that crossed — during the night?

Mr. Tennant: I have not full particulars, but I understand that the city of — was unfortunately injured in some respects.

[One refrains from mentioning the name given by Mr. Tennant, but one would like to know why Mr. Tennant gave it, for his words are certain to travel to Germany. When one couples this with Mr. Tennant's statement that British prisoners in Germany are as well fed as German prisoners in England, and that the allowance of vegetables to British prisoners is greater than the allowance to German prisoners, one doubts whether Mr. Tennant is fit to hold his office on any grounds, even if his perversions of truth concerning the Flying Corps were not enough to condemn him.—Ed.]

AERONAUTICAL DEPARTMENT (ACCOMMODATION).

On May 4th **Mr. Ashley** asked the First Commissioner of Works whether De Keyser's Royal Hotel, Victoria Embankment, is to be

taken over for a Government Department; if so, for what Department; what will be the cost of fitting it up; and what will be the annual rent?

The First Commissioner of Works (Mr. Harcourt): The hotel in question has been taken over for occupation by the Aeronautical Department of the War Office. No estimate of cost of adaptation has yet been framed. The premises have been requisitioned under the Defence of the Realm Act, and the question of compensation will, therefore, be settled by the Commission especially appointed to deal with such cases.

Mr. Ashley: Does the right hon. Gentleman wish the House to understand that no accommodation of a less expensive character is to be obtained near the War Office than this enormous hotel?

Mr. Harcourt: Yes, that is so.

ESSEN.

Mr. Ginnell asked the First Lord of the Admiralty if he will explain why Essen has been immune from attack by British aircraft?

The First Lord of the Admiralty (Mr. Balfour): I do not think it would be desirable to discuss military operations, actual or possible, by question and answer.

Mr. Ginnell: Will the right hon. Gentleman inform the House whether the immunity of Essen has any connection with the financial interest in subsidiary firms held by members of the British Cabinet?

DEFENCE BY INSURANCE.

On May 8th **Mr. Tickler** (Great Grimsby, U.) asked the President of the Board of Trade if he was aware that claims arising out of bombardment by enemy aircraft were being declined on the ground that the insured had also signed the coupon of a weekly paper, which paper refused to accept liability on account of the claim not being made against it in the prescribed time; and, seeing that the Government refused to pay the damage insured for until the insured had exhausted the funds of the weekly paper, what action he now proposed to take.

Mr. Pretyman (Essex, Chelmsford, U.), who replied, said: It is a special condition of the Government policy that the insured must exhaust his rights against any other subsisting insurance before claiming under the Government policy. A newspaper insurance coupon is a subsisting insurance, and I see no reason why the Government should relieve a newspaper of any liabilities which it may have legally incurred for its own purposes. The question of exhausting the funds of the newspaper does not, of course, arise.

Mr. Wing (Durham, Houghton-le-Spring, L.): Can the right hon. Gentleman assure us that the Department will take some steps to bring those newspapers to book that make promises and don't perform them?

Mr. Pretyman: We have considered this matter carefully. The situation is a very difficult one. If my right hon. Friend will kindly send us particulars of any actual cases that have occurred we will look into them and see what can be done. It is very important to the insurers that where the newspapers are liable they should fulfil their liabilities; otherwise the insurer is left stranded between the two parties.

LORD CURZON'S RECOMMENDATIONS.

Mr. Hogge asked the Under-Secretary of State of War whether he would say what were Lord Curzon's recommendations for the Air Service.

Mr. Tennant (Berwickshire, L.): This question is now under the consideration of the Government. It would be premature to make a statement.

PRIVATE FACTORIES.

Answering **Mr. Lynch**, **Mr. Tennant** said that in view of the advisability of developing to the fullest extent the air-power of the nation, he would take advantage of the services that various private aircraft factories, as for instance, the Whitehead aircraft factory, were in a position to render, and stimulate their efforts by suitable orders.

BRITISH ZEPPELINS.

Replying to **Mr. Hogge**, who asked how many Zeppelins we possessed, **Dr. Macnamara** (Camberwell, N., L.) said: It is not considered in the public interest to give the information desired.

THE R.F.C. COMMITTEE.

Mr. Tennant, replying to **Mr. Hogge** (Edinburgh, E., L.), said the names of the Committee appointed to inquire into the administration and command of the Royal Flying Corps were as follows:—**Mr. Justice Bailhache** (chairman), **Mr. J. G. Butcher**, K.C., M.P., **Mr. E. Shortt**, M.P., **Mr. J. H. Balfour Browne**, K.C., the **Hon. Charles Parsons**, K.C.B., **Mr. Charles Bright**, K.C., with **Mr. D. Cotes-Freedy**, as secretary. It was also proposed to invite a military officer of high rank to join the Committee. He believed the Committee would meet to-morrow (Tuesday).

A FOKKER FIGHTER.

A MECHANICAL engineer of wide experience, one of the earliest constructors in this country, has designs for a fighting aeroplane of speed 130 miles per hour, and climb 1,500 feet per minute. The design provides for all the usual military requirements, especially ease of landing, and is not a mere speed freak.

Let it be noted that nothing much less than this performance will suffice to deal with the super-Fokker or other machine which will have to be dealt with in a few months. In order to be ready then, a start must be made now or very soon, and it is no use designing merely to beat the Fokker—the Germans themselves will be doing that. This is a performance much in advance of anything believed to have been achieved hitherto, and the advertiser well knows that many will doubt the immediate practical possibility of such a machine, but he asks serious consideration for the following reasons.

During the winter of 1910-1911, the advertiser, having had two years' experience of aeroplane design, construction and tuning, and being at that time one of the only four British constructors who had successfully flown their own designs, commenced to advocate very small tractor biplanes as the best type of machine for speed purposes. At this period expert opinion in France and England was overwhelmingly of the opinion that the biplane could never rival the monoplane in the matter of speed, and great difficulty was experienced in getting anyone even to give the matter a fair hearing.

Nevertheless, during the summer of 1911 the advertiser built, under very great difficulties, what was the first tabloid tractor ever built by a serious constructor, and the first attempt to beat the monoplane in the matter of speed by means of a biplane. This machine was of 22 feet span, and was designed for a speed of 90 miles per hour with a 100 h.p. A.B.C. engine, and 80 miles per hour with a 50 h.p. Gnome. The best biplane speeds of that period were less than 60 miles per hour. The design also attempted to provide a high degree of positive (or "automatic") stability without sacrificing controllability—a problem not yet solved; an attempt to provide landing gear capable of alighting on and arising from ploughed fields—a quality then believed necessary for military work; and an attempt to provide in a tractor an unobstructed view for the pilot in all directions—a quality absent from the tractors of the period.

It was described in *The Aero* of August, 1911, and illustrated with the fuselage uncovered and in an incomplete state in THE AEROPLANE of that time. Owing to unexpected financial difficulties, the machine was never even tested, but lay in a shed at Brooklands during the succeeding three years. There is no doubt, in the light of the knowledge accumulated by the subsequent construction of tabloid tractors (by other constructors) at Brooklands, that, if it had been put through the drastic tuning and pruning process which the advertiser was accustomed to give a new type of machine, it would have achieved the results claimed.

The advertiser took up heavy engineering after this, returned to this country for service in August, 1914, and has since been engaged upon other work more immediately urgent even than Aeroplane Construction. During the last four years he has followed the development of Aeronautics very closely, and has done considerable private experimentation.

In view of the fact that he clearly foresaw a new line of development of the aeroplane four years ago, and that nearly all his claims have since been justified, the advertiser hopes that he will be taken seriously when he now states that he can see clearly that by basing the design chiefly upon well-known data accessible to all aeronautical engineers, but in part upon data accessible only to himself, that the performance outlined in the first paragraph is within immediate reach of *practical* construction, although he quite recognises that at present it is believed difficult in the form of either monoplane or biplane by the best designers. Unlike the tractor referred to above, the design is exceedingly simple, follows in all but a few points orthodox present-day practice, and anyone capable in aerodynamics and practical engineering could see its practicability in a few minutes.

No person or firm need apply unless prepared to allot £7,500 to the sole purpose of building, testing, and demonstrating the first machine. While the advertiser does not expect that it will cost one-third of this sum, in times such as these it might, and, as he was prevented from completing his last aeroplane effort solely through lack of capital, he is not taking any chances on this. He will require a free hand and sole control during the designing and tuning stages.

The advertiser has had a wide and successful experience in the organisation of factories and field construction, and has very successfully handled labour of various nationalities under many different conditions, and in the event of this proposal being taken up by any firm not already engaged on aeroplane construction would be prepared if necessary to place this experience at the service of the firm.

Reply in strict confidence to "X.Y.Z.," c/o THE AEROPLANE, 166, Piccadilly, W.

NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," May 2nd, 1916.

ADMIRALTY, April 26th.

ROYAL MARINE LIGHT INFANTRY.—Capt. H. Fawcett to be temp. Maj. while holding rank of Squadron Commander in R.N.A.S. April 7th.

ROYAL NAVAL AIR SERVICE.—Act. Flight Lieut. D. R. Thurstan confirmed as Flight Lieut. February 12th.

WAR OFFICE, May 2nd.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Wing Adjut.—Capt. H. N. Walker, Welsh R., and to be sec'd. March 4th.

MEMORANDUM.—Sergt. J. A. Pritchard, from Westmorland and Cumberland Yeo., T.F., to be temp. Sec. Lieut. for duty with R.F.C. March 14th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieuts. (on prob.) confirmed in rank: E. J. Watkins, C. J. Creery.

* * *

From the "London Gazette" Supplement, May 3rd, 1916.

WAR OFFICE, May 3rd.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Flying Officer.—Temp. Sec. Lieut. J. D. Seal, Gen. List. March 20th.

Machine-Gun Corps (Heavy Section).—Temp. Capt. F. Summers, D.S.O. (R. Mar.), from R.N.A.S., to be temp. Capt., March 28th, but with seniority from March 23rd, 1915 (substituted for notification which appeared in "Gazette" of April 3rd).

TERRITORIAL FORCE.—INFANTRY.—London R.—Sec. Lieut. E. T. Curling is sec'd. for duty with R.F.C. March 13th.

* * *

From the "London Gazette" Supplement, May 4th, 1916.

WAR OFFICE, May 4th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Central Flying School.—Asst. Comm'dt. (graded as Wing Comm.).—Lieut. (temp. Maj.) E. L. Conran, 21st Lrs., a Squadr. Comm., vice Capt. (temp. Lieut.-Col.) C. G. Hoare. 39th Horse, I.A. April 2nd.

Military Wing.—Flight Commrs.—From Flying Officers and to be temp. Cpts. whilst so employed: Sec. Lieut. C. E. H. Medhurst, R. Innis. Fus., Sec. Lieut. J. A. Soames, R. W. Fus. April 15th. Temp. Lieut. H. B. R. Rowell, R.E., T.F. April 16th.

Balloon Officer.—Lieut. G. F. H. Faithfull, 126th Baluchistan Inf., I.A., from temp. Capt., R. Scots. April 3rd.

Asst. Equipment Officer.—Temp. Sec. Lieut. W. C. Nichol, Gen. List. April 17th.

The Christian name of Qrmr. and Hon. Lieut. (temp. Capt.) Albert Levick is as now described, and not as in the "Gazettes" of March 22nd, 1915, and February 16th.

MEMORANDUM.—Corpl. Robin Tudor Barlow, from Canterbury Inf., New Zealand Forces, to be temp. Sec. Lieut. for duty with R.F.C. April 22nd, 1916.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—To be Sec. Lieuts. (on prob.): H. V. Rabagliati, T. Perkins, R. H. Edwards, G. D. Harrison, W. S. Shirlcliffe, D. C. Bauer, G. Lea, R. H. Lownds, S. G. Howard, A. P. Adams, E. D. Spicer, P. Thomson. April 22nd.

* * *

From the "London Gazette," May 5th, 1916.

WAR OFFICE, May 5th.

REGULAR FORCES.—COMMANDS AND STAFF (ATTACHED TO HEADQUARTER UNITS).—Brig.-Maj.: Capt. G. Livingstone, 3rd Lon. R., T.F., from a Wing Adjut., R.F.C., vice Capt. B. C. Fellows, ret. pay, Indian Army. April 18th.

CAVALRY.—Temp. Sec. Lieut. A. W. Williams relinquishes his commn. on appt. to R.N.A.S. April 20th. Sec. Lieut. L. E. B. Greaves, from R.F.C., Spec. Res., to be temp. Sec. Lieut. April 14th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lieut. (on prob.) R. G. Cookson confirmed in rank. To be Sec. Lieuts.: P. B. Moxon. March 4th. P. S. Kershaw. March 18th. To be Sec. Lieuts. (on prob.): H. S. Pell. March 25th. W. S. Roberts. April 18th. Capt. H. S. Lees-Smith, Defence Forces of the Union of S. Africa, G. V. Aimer, J. D. Hewett, W. F. Williamson, J. C. Burney-Cumming. April 22nd.

* * *

From the "London Gazette" Supplement, May 5th, 1916.

A Supplement to the "London Gazette" of May 5th adds the following name to those mentioned in General Sir Ian Hamilton's dispatch of December 11th, 1915 (published in a Supplement to the "London Gazette" dated January 28th, 1916):—

ROYAL NAVAL AIR SERVICE.—Major R. E. T. Hogg, C.I.E., 38th King George's Own Central India Horse (attached).

From the "London Gazette" Supplement, May 6th, 1916.

WAR OFFICE, May 6th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Flight Commanders, and to be temp. Cpts. whilst so employed: Lieut. C. R. Rowden, Worc. R., from a Flying Officer. April 17th. Temp. Lieut. W. R. Nelson, Gen. List, from a Balloon Officer. April 18th. From Flying Officers, and to be temp. Cpts. whilst so employed: Temp. Lieut. A. W. H. James, 3rd Hrs., Temp. Lieut. G. H. Norman, Gen. List, Lieut. E. P. Plenty, Manch. R., Sec. Lieut. R. F. S. Morton, Spec. Res. April 18th.

Equipment Officers., and to be temp. Cpts. whilst so employed: Q.-Mr. and Hon. Lieut. J. Mead, from an Asst. Equipment Officer. April 15th. Temp. Lieut. S. J. Radford, A. Ord. Dept., and to be transferred to Gen. List. April 22nd.

Flying Officers.—Sec. Lieut. J. O. Archer, R.F.A., Spec. Res.: Lieut. N. H. Bottomley, E. Yorks R., Spec. Res., and to be sec'd. April 12th.

Flying Officer (Observer).—Lieut. J. R. Dennistoun, Can. Local Forces, from Can. Cav. Depôt. April 17th.

Balloon Officers.—Lieut. D. C. L. Speed, K.R.R.C., and to be sec'd.: Temp. Lieut. O. Hook, Gordon Highrs., and to be transferred to Gen. List, Sec. Lieut. P. S. Kershaw, Spec. Res. April 1st. Sec. Lieut. G. C. Levick, K.R.R.C., and to be sec'd. April 3.

Temp. Sec. Lieut. G. W. Lynn, 22nd Midd'x R., and to be transferred to the Gen. List. April 12th. Capt. J. P. Shelley, R. Lanc. R., and to be sec'd., Temp. Sec. Lieut. G. S. D. M. Pape, Gordon Highrs., and to the transferred to Gen. List, Temp. Sec. Lieut. G. K. Simpson, Gen. List, Sec. Lieut. H. P. L. Higman, R.E., T.F., Temp. Sec. Lieut. T. Kennie, E. Yorks R., and to be transferred to Gen. List. April 3rd. Sec. Lieut. R. G. Cookson, Spec. Res., Sec. Lieut. P. B. Moxon, Spec. Res. April 18th.

Asst. Equipment Officers.—Temp. Sec. Lieut. D. P. Geddes, Gen. List. April 7th. Sec. Lieut. (on prob.) J. M. Furnival, Spec. Res. April 20th. Lieut. D. C. James, Worc. R., Spec. Res., and to be sec'd. April 27th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—Sec. Lieut. (on prob.) W. O'Hara relinquishes his comm. April 17th.

* * *

From the "London Gazette" Supplement, May 8th, 1916.

WAR OFFICE, May 8th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Central Flying School.—Maj. N. D. K. MacEwen, Arg. and Suth'd Highrs., from a Wing Adjut., to be Adjut. (April 1st).

Flying Officers (Observers).—Lieut. G. C. de Dombasle, R. Canadian R. (Feb. 15th); Sec. Lieut. R. R. Money, E. York R., and to be sec'd. (Feb. 27th).

Asst. Equipment Officers.—Lieut. C. H. Awcock, R.A., from a Flying Officer (March 1st); temp. Sec. Lieut. J. L. Miles, Gen. List (April 23rd); Sec. Lieut. W. R. Lewis, S.R. (April 25th).

MEMORANDA.—To be temp. Sec. Lieuts. for service with the R.F.C.: Pte. Leonard Rawcliffe Fletcher, from R. Fus.; April 5th, 1916. Pte. J. H. Mackie, from R. Fus.; April 27th, 1916.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—To be Sec. Lieuts. (on prob.): C. Jarrott (April 18th); F. W. Roberts (April 22nd).

NAVAL

The following appointments were notified on May 2nd:—

ROYAL NAVAL AIR SERVICE.—Warrant Officer, sec. grade, temp., P. Hutchinson granted a temp. commission as Lieut., R.N.V.R., with seniority May 1st.

The following have been granted temp. commissions as Sub-Lieuts., R.N.V.R., all with seniority May 1st, and appointed to the "President," additional, for R.N.A.S.: L. G. Frise, J. G. M. Bevan, R. M. Botley, and C. J. R. Alsford.

Actg. Sub-Lieuts.—C. S. Colton and H. V. Drew graded as Flight Sub-Lieuts., both to date March 15th.

The undermentioned have been entered as Proby. Flight Sub-Lieuts., to date as stated: D. H. Masson. March 21st. W. S. Oliver and G. T. Bysshe. March 22nd. W. Lodge. March 19th; and W. M. Alexander. March 23rd.

* * *

The following appointment was notified on May 4th:—

ROYAL NAVAL AIR SERVICE.—Mr. E. C. Horsley granted a temp. commission as lieut., R.N.V.R., and appointed to the "President," additional, for R.N.A.S., to date May 3rd.

* * *

The following appointment was notified on May 5th:—

ROYAL NAVAL AIR SERVICE.—Lieut.-Commander.—J. W. L. Hunt, granted act. rank of Commander, seniority of May 1st.

* * *

The following appointments were notified on May 6th:—

ROYAL NAVAL AIR SERVICE.—Flight Commander.—C. H. K. Edmonds, D.S.O., to "President," additional, for Special Service in R.N.A.S. May 5th.

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The following appointments were notified on May 8th:—

ROYAL NAVAL AIR SERVICE.—Mr. F. H. Hodges granted a temp. commission as Lieut., R.N.V.R., with seniority May 6th.

Mr. E. P. Smyth granted a temp. commission as Lieut., R.N.V.R., and appointed to the "President," additional, for R.N.A.S., to date May 5th

Flight Sub-Lieut. M. A. Simpson, promoted to Flight Lieut. and temp. Flight Sub-Lieut. R. Y. Bush promoted to temp. Flight Lieut., both with seniority April 1st.

The undermentioned have been entered as Probationary Flight Sub-Lieuts. for temp. service, and appointed to the "President," additional, for R.N.A.S., to date as mentioned: D. D. Findlay, March 28th; G. B. Anderson, March 29th; F. P. L. Washington, April 7th; A. G. Macdonald, April 11th; and W. E. Flett, April 13th.

* * *

The following announcements were made by the Secretary of the Admiralty on May 5th:—

12.30 p.m.

A Zeppelin was destroyed yesterday by one of our light cruiser squadrons off the Schleswig coast.

May 5th, 6.45 p.m.

The Commander-in-Chief Grand Fleet has reported that the ships which destroyed the Zeppelin yesterday were H.M.S. "Galatea," Commodore E. S. Alexander-Sinclair, M.V.O., A.D.C., and H.M.S. "Phæton," Capt. J. E. Cameron, R.N., M.V.O.

The Zeppelin was apparently employed on scouting duty when she was destroyed by the gunfire of these two vessels.

May 5th, 7.15 p.m.

Vice-Admiral De Robeck reports that at about 2.30 this morning a Zeppelin approached Salonika.

When passing over the harbour she was heavily fired on and hit by the Fleet, and came down in a blaze near the mouth of the Vardar River.

There were no survivors.

[This should be compared with reports from people at Salonika (see Greek Notes) who say "No bodies were found," and that the crew escaped into the marshes. The discrepancy demands official attention.—Ed.]

* * *

The Secretary of the Admiralty made the following announcement on May 6th:—

A more detailed report has now been received of the destruction of Zeppelin L.7.

It now appears that, though severely damaged by H.M. ships "Galatea" and "Phæton," her destruction was completed by a British submarine commanded by Lieut.-Commander F. Feilman, R.N., which rescued seven of the Zeppelin's crew and has returned with them. She was attacked and slightly injured by a German cruiser on her return journey.

* * *

The Secretary of the Admiralty also made the following announcement on May 6th:—

In a further report from Vice-Admiral de Robeck, concerning the Zeppelin brought down at Salonika, it is now stated that survivors of the crew have been found, and four officers and eight men have been made prisoners.

* * *

The Secretary of the Admiralty made the following statement on May 7th:—

With reference to the official German report published to-day, it is the fact that two of our naval aeroplanes are missing. The body of Flight Sub-Lieut. H. R. Simms, R.N., has been picked up at sea, and the observer, Sub-Lieut. C. J. Mullens, R.N.V.R., is missing, his lifebelt having been picked up in the same vicinity.

As regards the aeroplane reported captured by the Germans, the names of the officers concerned in this case are:—Flight Sub-Lieut. Arthur T. N. Cowley, R.N., Sub-Lieut. Ronald M. Inge, R.N.V.R.

[See German communiqué.—Ed.]

* * *

The following appeared in the Casualty List on May 5th:—

MISSING, May 4th.—Flight Sub-Lieut. Reginald E. Green-smith, R.N.

PROBY, Flight Sub-Lieut. Kenneth M. van Allen, R.N.

INJURED, May 3rd.—Proby. Flight Sub-Lieut. Alexander McN. Proctor, R.N.

* * *

The Secretary of the Admiralty announced the following casualties on May 6th:—

DROWNED, May 4th.—Flight Lieut. Oswald N. Walmsley, R.N.

DROWNED, May 5th.—Flight Sub-Lieut. Herbert R. Simms, R.N.

Sub-Lieut. Cyril J. A. Mullens, R.N.V.R.

SLIGHTLY INJURED, May 5th.—Proby. Flight Sub-Lieut. Augustine F. Marlowe, R.N.

SLIGHTLY WOUNDED, AND TAKEN PRISONER, April 26th.—Flight Sub-Lieut. Cecil B. Gasson, R.N.

PREVIOUSLY REPORTED AS MISSING, MAY 4TH, NOW REPORTED NOT MISSING.—Flight Sub-Lieut. Reginald E. Greensmith.

* * *

The Secretary of the Admiralty announced the following casualties on May 8th:—

MISSING, UNOFFICIALLY REPORTED PRISONERS, May 6th.—Cowley, Flight Sub-Lieut. Arthur T. N., R.N.

Inge, Sub-Lieut. Ronald M., R.N.V.R.

* * *

Sub-Lieut. Cyril J. A. Mullens, R.N.V.R. (drowned on May 5th), had seniority of October 21st, 1915.

* * *

Flight-Lieut. Oswald N. Walmsley, R.N. (drowned on May 4th), had seniority of January 1st, 1916.

* * *

Flight Sub-Lieut. Herbert R. Simms, R.N. (drowned on May 5th), had seniority of July 28th, 1915.

* * *

MULLENS.—On May 5th, drowned off the coast of Flanders in the course of an air fight, Sub-Lieut. Cyril J. A. Mullens, R.N.V.R., the only son of Mr. and Mrs. J. A. Mullens, 31, Lowndes Square, S.W., and Barrow Hills, Longcross, aged 19. Sub-Lieut. Cyril J. A. Mullens, R.N.V.R., was 19 years of age. Educated at Eton he had just entered at Cambridge before he joined the R.N.A.S., and for some little while recently had been doing successful work as an observer.

* * *

BROAD.—On April 27th, Flight Sub-Lieut. Dennis G. Broad, R.N., lost his life in action in the North Sea; dearly loved elder son of Mr. and Mrs. H. E. Broad, Trengrove, Harpenden. Australian papers, please copy.

* * *

A marriage has been arranged, and will shortly take place, between Leslie Gilson Nicolson, R.N.A.S., only son of Mr. James Nicolson, of Hampstead, and grandson of the late Mr. Thomas Gilson, of Edinburgh, and Dorothea, only daughter of Mr. and Mrs. Charles Brindley, of Barrowby House, Worksop, Notts.

* * *

MILITARY.

G.H.Q. communiqué, May 2nd, 10.55 p.m., says:—

As a result of combats in the air yesterday, two hostile aeroplanes were driven down in a damaged condition, and were seen to land a short distance behind the German line.

* * *

G.H.Q. communiqué, May 3rd, 10.35 p.m., says:—

Yesterday our aircraft carried out a considerable amount of work in spite of the thundery weather. Few hostile aircraft were seen.

* * *

G.H.Q. communiqué, May 5th, 9.55 a.m., says:—

Yesterday, as a result of combats in the air, we drove down two enemy machines behind the German lines. One machine was wrecked, and the pilot of our aeroplane fired upon the occupants after landing, and then returned safely to our lines. The other enemy machine was damaged.

During the day one of our aeroplanes was lost, being brought down in the enemy's lines.

* * *

G.H.Q. communiqué, May 7th, says:—

Yesterday a considerable amount of successful air work was carried out. The few hostile machines seen were driven off.

* * *

The following communiqué was issued at 12.30 a.m. on May 3rd by the Field-Marshal-Commanding-in-Chief, Home Forces:—

Five hostile airships attacked the north-east coast of England and south-east coast of Scotland last night.

The movements of the raiders appear uncertain.

A few bombs were dropped in Yorkshire, but no details are yet to hand as to casualties and damage caused thereby.

* * *

The following further communiqué was issued by the Field-Marshal-Commanding-in-Chief, Home Forces, at 5.30 p.m. on May 3rd:—

The Zeppelin raid of last night covered a considerable extent of our Eastern Coasts. At least five or six airships actually crossed the shore, but reports received from reliable observers, made at various times during the night at many points—some so far distant as Rattray Head, in Scotland, down to the North Coast of Norfolk—would point to a possibility of a greater number of airships having been employed off our coasts.

The enemy, however, made only two attempts to penetrate inland.

About one hundred bombs were dropped, scattered over many localities. Their exact number is difficult to give, since a great number fell in uninhabited areas and some others into the sea.

Only in a single locality did the raiders cause any casualties

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or effect much damage. In this case the bombs which fell amounted to 12 explosive and 4 incendiary, with the result that 18 houses were damaged.

The casualties totalled: Six men (including one soldier) and 3 women killed; 19 men (including 3 soldiers) and 8 women injured.

Total: 36 casualties.

The remaining 70-odd bombs occasioned only two casualties (one soldier and one child slightly injured). The damage affected one storehouse and a few cottages, mostly broken glass.

The raiders only twice came within the range of any anti-aircraft artillery, and on both occasions retreated out of range without delay.

* * *

The following communiqué was issued by the Field-Marshal-Commanding-in-Chief, Home Forces, at 5.15 p.m. on May 3rd:—

A hostile aeroplane visited Deal at 3.59 p.m. this afternoon, coming from the direction of Ramsgate, and dropped six bombs on the railway station. Several houses were badly damaged.

One man was badly injured. This is at present the only casualty known.

The aeroplane made off flying above the clouds.

Our aircraft went up in pursuit.

* * *

A communiqué issued by the F.-M., C.-in-C., at 7.30 p.m. on May 3rd says:—

Further reports of to-day's seaplane attack on Deal give the casualties as two men and one woman injured. There have been no deaths.

The windows of a church were broken, the roof of a house blown off, and a public-house seriously damaged. Windows were broken in about twenty houses.

Seven bombs in all were thrown.

* * *

The following appeared in the Casualty List on May 2nd:—

KILLED.—Mitchell, Sec. Lieut. J., Royal Flying Corps.

* * *

The following appeared in the Casualty List on May 3rd:—

DIED OF WOUNDS.—Milner, Sec. Lieut. J., Durham L.I., att'd. Royal Flying Corps.

WOUNDED.—Foggin, Sec. Lieut. C. E., Royal Flying Corps.

* * *

The following appeared in the Casualty List on May 4th:—

WOUNDED.—Rowden, Lieut. C. R., Worcestershire Regt., att'd. Royal Flying Corps.

Tolhurst, Sec. Lieut. W. H., Royal Flying Corps.

* * *

The following appeared in the Casualty List on May 5th:—

WOUNDED.—Tankerville-Chamberlayne, Sec. Lieut. P. R., Hussars and Royal Flying Corps.

* * *

The following appeared in the Casualty List on May 6th:—

KILLED.—Capt. E. H. Mitchell, R.A. and R.F.C.

WOUNDED.—Sec. Lieut. G. S. Bush, R.F.C.

Sec. Lieut. N. B. Harris, R.F.C.

Lieut. S. H. B. Harris, R.F.C.

Sec. Lieut. C. Monckton, R. Irish Fus. and R.F.C.

Sec. Lieut. R. K. Shives, R.F.C.

PREVIOUSLY OFFICIALLY REPORTED MISSING, NOW UNOFFICIALLY REPORTED KILLED.—Major V. A. Barrington-Kennett, R.F.C.

* * *

The following appeared in the Casualty List on May 8th:—

DIED OF WOUNDS.—Adie, Sec. Lieut. H. M. E., Royal Flying Corps.

WOUNDED.—Dickie, Lieut. A. P., Black Watch and Royal Flying Corps.

* * *

Lieut. E. H. Mitchell, Royal Artillery and R.F.C. (killed in action), received his commission in the Artillery in August, 1915, and was gazetted to the R.F.C. in the October following.

* * *

Major V. A. Barrington-Kennett, reported missing on March 13th, is now unofficially reported killed. He was shot down by a German aeroplane during a fight in the air. He was flying alone when he met his death. The German communiqué of the day after his disappearance noted that a British aeroplane was shot down and the occupant killed, but it is only now that apparently any information has been obtained as to his fate. He was educated at Ludgrove School, Eton, and Balliol College, Oxford, where he graduated with honours. He was recommended in dispatches "for gallant and distinguished service in the field." Before the days of flying he was a keen member of the Balloon Section of the Territorial Forces, and he learned to fly at Eastchurch as a member of that Section. He developed later into a very fine flier and an efficient officer, who was loved and respected by his men. He obtained his pilot's certificate in March, 1912, and was gazetted flight-commander in June, 1915.

Victor Annesley Barrington-Kennett (Major, R.F.C.) was the third son of Lieut.-Colonel B. H. Barrington-Kennett, H.M. Body Guard, to fall in the war. Brevet Major Basil H. Barrington-Kennett, Grenadier Guards, previously of the R.F.C., and

one of the founders of the Corps, was killed on May 18th, 1915, at the age of 30, when leading his company under a heavy fire, and Second Lieutenant Aubrey Hampden Barrington-Kennett, of the Oxford and Bucks Light Infantry, fell at the Battle of the Aisne, aged 25. Colonel Barrington-Kennett's only surviving son, Godwin Austen, is serving in East Africa.

* * *

Second Lieutenant H. M. E. Adie, Royal Flying Corps (died of wounds), received his commission as temporary Second lieutenant on February 6th, 1916.

* * *

Lieut. Charles Walter Palmer, R.F.C., who was wounded and taken prisoner in an air fight on March 2nd, is reported to have died of blood-poisoning in a prison camp in Germany on March 29th, at the age of 24. He was the eldest son of Mr. and Mrs. George A. Palmer, of Wykin, Hincley, and obtained a commission in the Duke of Cornwall's Light Infantry at the outbreak of the war, and was subsequently appointed to the R.F.C. Mr. Palmer was with Mr. H. F. Birdwood when the latter was killed. Mr. Palmer wrote a cheery letter home on March 18th, the day after he had had his foot amputated, to say that he hoped soon to be well and exchanged. His superior officer writes of him as "a splendid pilot, whose loss is a great blow to the squadron."

His death from blood poisoning eleven days after the amputation shows again that curious lack of proper attention to the ordinary principles of nursing which seem common to most military and official hospitals, though, of course, it may have been due to a modified version of the Wittenburg system of German doctoring.

* * *

Lieut. J. E. Freeman, R.F.C., whose death in an aviation accident is notified from Flanders, is reported to have dropped some 3,000 ft. in an aeroplane near Brooklands about six weeks ago. He then emerged from the wreck of the machine uninjured. Mr. Freeman rowed for Radley College at the last Henley Regatta.

* * *

Sec. Lieut. J. Milner, Durham Light Infantry and R.F.C. (died of wounds), received his commission on December 30th, 1914.

* * *

Lieut. James Mitchell, R.F.C., was formerly in the Canadian Infantry. He was killed on April 26th.

* * *

At an inquest at Eton Wick, Bucks, on May 3rd, on the body of Lieut. Alfred Boag, aged 32, who was killed while flying on Saturday, April 29th, it was stated that the machine was struck by a sudden gust of wind about 100 ft. from the ground and the pilot lost control. A verdict of "Accidental death" was returned.

* * *

It is reported that Corporal Giddins, R.F.C., was killed and an officer accompanying him was injured as the result of a flying accident at Gosport on May 5th.

* * *

FOX.—In loving memory of Alan Geoffrey Fox, Captain, R.E., and R.F.C., killed on May 9th, 1915, in the attempt to bomb a bridge. Buried at Cambrin.

Per ardua ad astra.

* * *

SPENCE.—Killed in action, on May 9th, 1915, Charles Bennett Spence, Lieutenant, R.F.A., attached Royal Flying Corps. A loving and much-loved son and brother.

* * *

MITCHELL.—On April 26th, killed in action, Sec. Lieut. James Mitchell, R.F.C., late Canadian Infantry. "A glorious death." "For King and Country."

* * *

JOUBERT DE LA FERTE.—On April 30th, at Larchfield, St. George's Hill, Weybridge, the wife of Major P. B. Joubert de la Ferte, R.F.A., and Royal Flying Corps, of a daughter.

* * *

JONES.—On May 1st, at Old House Cottage, Great Horkesley, Colchester, Essex, the wife of C. Gordon Jones, Lieut., R.F.C., of a daughter.

* * *

WALDRON.—On May 4th, at 78, Avenue Road, Regent's Park, London, the wife of Major F. F. Waldron, 19th Hussars and Royal Flying Corps, of a daughter.

* * *

The marriage took place on May 8th, at the Oratory, Brompton Road, of Mr. J. A. Hartcup, R.F.C., son of the late Mr. H. J. Hartcup, of Upland Hall, Bungay, Suffolk, to Miss Violet Hammet, only daughter of the late Vice-Admiral Lacon Hammet, C.V.O., and of Mrs. Clement La Primaudave, and granddaughter of the late Sir Henry Bedingfield.

The bride, who was given away by her uncle, Sir H. Paston-Bedingfield, wore a gown of white and silver taffeta, trimmed with old Brussels lace. Her bridal veil was of the same lace, and was the gift of her grandmother, the Dowager Lady Bedingfield, and she carried a sheaf of Harrisii lilies. Miss Cecilia Jerminham, daughter of Sir H. Jerminham, the only bridesmaid, wore a gown of pale blue, with a black velvet hat, and carried a bouquet of pink carnations.

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An engagement is announced between Sydney Charles Thomas Littlewood, Sec. Lieut. 3rd Loyal North Lincs. Regt. and R.F.C., elder son of Charles Sydney Littlewood and Mrs. Littlewood, of Woolston, Southampton, and Evelyn Myrtle Prior, eldest daughter of William Prior and Mrs. Prior, of Kingsclere, Hampshire.

* * *

An engagement is announced between Major A. S. Barratt, Squadron Commander, R.F.C., and Lieut., R.F.A., son of C. H. Barratt, M.I.C.E., late P.W.D., Punjab, India, and Mrs. Barratt, 16, Apsley Road, Clifton, and Nora Lilian, youngest daughter of the late E. G. Crew and Mrs. Crew, of Langford Lodge, Clifton, Bristol.

* * *

An engagement is announced between Capt. Alan Handfield Morton, R.F.A. and R.F.C., only son of Major P. F. Morton, 11th Suffolk Regiment, and Mrs. Morton, of 15, Ashley Place, and Iris Mary, only daughter of Mr. and Mrs. F. M. Hotblack, of Boltons, Lewes.

* * *

A young officer recently invalided from Flanders suggests that he should contribute a weekly column of gardening notes to THE AEROPLANE as being likely to have a soothing effect on damaged aviators whose nerves may be shaken by their experiences abroad and may be still further jarred by internal wrangles in the Flying Services at home.

The idea is not without its merits, and should appeal particularly to pilots who have practised the agricultural pursuit of landing on their propellers with their engines some feet under the surface of the ground, also to those whose machines of official design have been more remarkable for their fondness for mud ploughing than for their lifting power, and also to those who after training on Salisbury Plain have found the average landing ground in Flanders more like a suburban backyard than an aerodrome. Therefore, if such an article should appear over the initials P. B., readers will know that it must not be attributed to the Member for East Herts, but to another hand—something on the lines of the classical scholar who said, "Homer wasn't written by Homer but by another fellow of the same name."

FRANCE.

The communiqué of May 2nd says:—

Yesterday a German aeroplane was brought down by one of our pilots in the course of a lively fight. The machine fell in the enemy lines to the north of Douaumont.

* * *

The communiqué of May 5th says:—

During the night of May 4th-5th, about 2 in the morning, a Zeppelin which was flying over Salonika was brought down by the guns of the Allied Fleets.

The Zeppelin fell in flames at the mouth of the Vardar. [See Greek and British reports for discrepancies.—Ed.]

* * *

The communiqué of May 7th says:—

In the course of the gale which raged the day before yesterday about a score of our captive balloons broke from their moorings. Several were carried into the German lines, while others came down within the French lines. The majority of the observers succeeded in landing in our lines by using their parachutes. News, however, is lacking of some who were carried into the enemy zone.

* * *

The communiqué of May 8th says:—

Two German aeroplanes were brought down in an air fight in the Verdun district. One of them fell in the vicinity of Ornes, and the other, which had been seriously hit, was compelled to come to earth south of Azannes.

* * *

The "Matin" of May 7th says:—"A woman of Chalons-sur-Marne, having heard of the death of her soldier son at the battle in the Champagne in September last, went with her daughter to

Mourmelon, where he was buried. Just as she reached the grave a German aeroplane dropped a bomb, which killed the woman on the spot, and so severely injured her daughter and a hospital attendant who accompanied them that these succumbed to their injuries.

* * *

It is reported that Sergt.-Pilot Treille de Grandseigne has recently attacked a German cruiser and a Zeppelin off the Belgian coast. The latter affair took place at about 2 a.m. on April 26th, when de Grandseigne encountered in the North Sea, about 13 miles out from Zeebrugge, a German airship returning from a raid on the Thames estuary.

With a naval gunner he was piloting an "avion-canon" or gun-carrier. They were at the height of 12,000 ft. when the Zeppelin came in sight, and at once attacked. Nineteen incendiary shells were fired, and, though no decisive result could be seen in the darkness, the airship is said to have been several times hit.

During the night of April 15, de Grandseigne and his gunner flew to Ostend. Here they noticed that signals were passing between the harbour and two red lights at sea, which proved to be German ships. Dropping to only 300 ft. they approached and found them to be two cruisers apparently making for Zeebrugge. The aeroplane was fired upon, but although several shells exploded near it, it was not touched. Meanwhile the gunner fired 16 shells, repeatedly striking one of the cruisers, which, it is claimed, was considerably damaged, though what damage a shell of presumably not more than 3 lbs. could do to a cruiser is not clear.

It is said that Sergt.-Pilot Treille de Grandseigne is only 25 years old, and has done two years' military aviation service, after making several remarkable flights as a civilian. He has already been decorated for several exploits.

GERMANY.

The communiqué of May 2nd says:—

It has now been reported that two French aeroplanes were brought down in aerial battles on April 30th—one over Chaume Fort, west of Verdun, and one over Thierville Wood, south-west of the town.

Yesterday First Lieut. Bölcke shot down his fifteenth aeroplane over Poivre Hill, and First Lieut. Baron von Althaus his fifth enemy aeroplane north of Fort St. Michel.

* * *

The naval communiqué of May 2nd says:—

A naval airship on May 1st successfully attacked the military installations at Moon Sound and Pernoff. The airship landed unhurt.

At the same time a squadron of our seaplanes dropped bombs on the military installations and aerodrome at Papenholm in the island of Oesel. The seaplanes returned undamaged, and good effect was observed.

A hostile air squadron on May 1st attempted to attack our naval installations at Windau, but it was compelled by our anti-aircraft guns to return without having achieved anything.

* * *

The communiqué of May 3rd says:—

First Lieut. Baron von Althaus shot down his sixth enemy aeroplane over the Caillette Wood.

A French aeroplane was brought down in an air fight south of the Thiaumont Redoubt.

Two other machines were brought down by our anti-aircraft guns—one south of the Talou Ridge and the other near the Thiaumont Farm. A fifth machine was brought down by our machine-gun fire near Hardoumont. The pilot of this last machine was killed and the observer severely wounded.

* * *

The communiqué of May 4th says:—

Several enemy aeroplanes early this morning bombarded Ostend, but their bombs only dropped in the garden of the

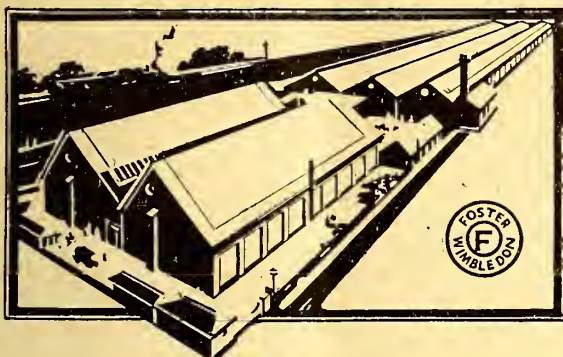


"Somewhere in Africa."—Seaplanes on test before the "Königsberg" affair.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Royal Palace. One of these aeroplanes was shot down in an air fight near Middelkerke. The occupants, two French officers, were killed.

West of Liévin two enemy machines were brought down by the fire of our anti-aircraft guns and machine-guns.

In the district of Fort Vaux two French biplanes were put hors de combat by our aviators.

Eastern theatre of war.—Our airships attacked the railway buildings on the line from Molodetchno to Minsk, and the railway junction of Luiniets, north-east of Pinsk, with visible success.

* * *

An official telegram from Berlin dated May 4th says:—

In the Baltic the activity of our naval aviators is vigorous. A squadron of seaplanes again bombarded the Russian battleship "Slava" and an enemy submarine in Moon Sound, scoring hits. An enemy air attack on our coast station of Pissen caused no military damage.

One of our submarines on April 30th shot down a British aeroplane off the coast of Flanders. The occupants were rescued by an enemy destroyer.

* * *

The Admiralty Staff announced on May 4th:—

A naval airship squadron, during the night of May 2nd-3rd, attacked the central districts and northern portion of the English East Coast and dropped numerous bombs, with apparent good results, on factories, smelting furnaces, and railway premises near Middlesborough and Stockton, industrial works near Sunderland, the fortified coast place of Hartlepool, the coast batteries south of the River Tees, and the British warships at the entrance to the Firth of Forth.

In spite of a heavy bombardment, all the airships returned to their home ports with the exception of L20, which, owing to a strong southerly wind, was driven off to the north and came to grief near Stavanger. The airship was lost, but the entire crew were rescued.

In the afternoon of May 3rd one of our naval aeroplanes attacked an English coast battery near Sandwich, south of the mouth of the Thames, and the aerodrome west of Deal with success.

* * *

The communiqué of May 5th says:—

Aerial fighting developed in the course of April, especially in the second half of the month, to a great extent on the Western front, with increased bitterness.

In place of single combats, fighting conducted in groups and squadrons is becoming more and more prominent. These battles are, for the greater part, fought to a finish on the other side of our lines.

In the course of these battles on the Western front 26 enemy aeroplanes were brought down by our battle aviators during April, two of which came into our possession on our side of the front line of trenches. In addition to these, 10 aeroplanes succumbed to the fire of our anti-aircraft guns.

Our own losses, on the other hand, amount altogether to 22 aeroplanes. Of these, 14 were lost through aerial battles, four through not returning, and four through being shot down from the earth.

An English biplane, with a French distinguishing mark, fell into our hands, undamaged, on the coast, in the neighbourhood of the Dutch frontier. Its occupants saved themselves in neutral territory.

A German squadron freely and successfully dropped bombs on the railway establishments in the Noblette and Auve Valley, in Champagne, as well as on the aerodrome at Suippe.

* * *

The communiqué of May 6th says:—

One of our airships has not returned from its flight to Salonika. According to a British report it was shot down and burnt.

* * *

The communiqué of May 7th says:—

To the south of Warneton Sergeant Frankl brought down a fourth English biplane, and has thereby put his fourth enemy aeroplane out of action. His Majesty the Emperor has given expression to his appreciation of the achievements of this capable aviator by promoting him to rank of an officer.

To the south-east of Diedenhofen a French machine was forced to land and its occupants were taken prisoners.

A great number of French captive balloons broke loose last night owing to a sudden storm and floated over our lines. More than 15 have been captured up to the present.

[What a vision for a German at breakfast-time!—Ed.]

* * *

The following Naval communiqué was issued on May 7th:—

On Friday afternoon a hostile aeroplane was brought down in the course of an air fight off the coast of Flanders, one of our torpedo-boats assisting. The approach of British forces prevented the rescue of the occupants.

One of our torpedo-boats yesterday captured a British aeroplane off the coast of Flanders, undamaged, the occupants, both officers, being also captured.

The communiqué of May 8th says:—

Two French biplanes fell to the ground in a burning condition over the Froideterre Hill (east of the Meuse).

* * *

A neutral who spent Easter in Berlin says that a great display of Zeppelins and aeroplanes was made at the racecourse. The tercentenary Shakespeare celebrations were being held with enthusiasm.

* * *

The "Frankfurter Zeitung" says that the eldest son of Prince Ernst von Saxe-Meiningen—namely, Baron Georg von Saalfeld—was killed in an air fight at La Bassée by an English aviator.

RUSSIA.

The communiqué of May 3rd says:—

In the region north-west of Yarmolintze, south of Proskouroff, an enemy Albatros was compelled to descend owing to motor trouble, and we captured the aviators.

* * *

The communiqué of May 4th says:—

South of the region of Dvinsk enemy aeroplanes dropped bombs on numerous points of this front.

In the district south of the town of Krevo there was a violent artillery duel, in the course of which one of our shells blew up a German captive balloon which was observing the German fire.

* * *

The communiqué of May 7th says:—

Enemy aeroplanes dropped bombs on several parts of the front. In the region between Jacobstadt and Dvinsk our artillery by a successful hit caused an explosion of enemy munitions of war.

In the region of Muravitsa one of our aeroplanes attacked two enemy machines, and after a fight of half an hour one German aeroplane came to earth in their lines; the other disappeared.

* * *

The communiqué of May 8th says:—

Two German aeroplanes dropped eight bombs on the village of Liakhovitchi.

* * *

A message from the "Times" correspondent at Petrograd dated May 3rd says:—

With the advent of warm weather German aviators have greatly developed their activity, chiefly on the northern front.

Flights for reconnaissance purposes are usually undertaken by single machines, which, maintaining a great altitude, endeavour to cross the line of fire unperceived. More frequently, however, the objects of these raids are aggressive, when several aeroplanes participate, and in order to strike their target fly comparatively low, generally within range of artillery fire. Hitherto, despite the perfection of the enemy's machines, the material damage inflicted has been inconsiderable, and the moral effect nil.

The latest German armoured aeroplanes are effective only against rifle fire, and powerless to cope with shells. Last week our artillery on the northern front brought down four machines, one of which was captured with the pilot.

According to the latest estimates some 10 Zeppelins are now operating on this front, principally in reconnaissances which take them far afield. In spite of their strong armament they avoid encounters with our aeroplanes owing to the vulnerability of their envelope. Last week a Zeppelin was sighted near Uexküll making for Riga, whereupon two shrapnel shells were discharged, the second of which evidently damaged the enemy, who abruptly veered to the south-west and disappeared.

AUSTRIA.

The communiqué of May 4th says:—

Last night an enemy airship crossed our lines at Wippach and dropped some bombs. It then proceeded in a northerly direction across the Idena Valley towards Laibach and Salloch. On its return our artillery fire cut it off near Dornburg, and the airship, which was simultaneously attacked by our aviators, was set on fire and fell a wreck near the drill-ground at Gorizia. The four occupants were killed.

Yesterday several of our aeroplanes attacked the Italian camp near Villesse, and returned safely after dropping numerous bombs and taking part in a heavy aerial engagement.

At 3 o'clock this afternoon a squadron of our seaplanes bombarded the railway station, a sulphur factory, and the barracks at Ravenna with good effect. Conflagrations were observed in the sulphur factory and at the railway station. Although heavily bombarded by two anti-aircraft batteries, all the aeroplanes returned.

At the same time a reconnoitring torpedo-boat flotilla met four enemy destroyers to the south of the mouth of the River Po. A long-range artillery engagement ensued, but we were unable to score any success as the superior speed of the enemy did not allow of our coming to close quarters. Several of our aeroplanes participated in the fighting and attacked the enemy vessels with machine-guns.

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The communiqué of May 5th says:—

On Thursday morning our seaplanes bombarded Valona and in the afternoon Brindisi. At Valona the batteries and the aerodrome were several times effectively hit. In Brindisi railway trains, the station warehouses, the arsenal and a group of destroyers lying close together were several times hit. Many bombs exploded in the town. An ascending hostile aeroplane was immediately chased.

On the way back, far out to sea, the cruiser "Marco Polo" was observed with the crew standing close together on deck. The ship was fired at with machine guns. In spite of the heavy anti-aircraft fire, all our aeroplanes returned safely from Valona and Brindisi.

ITALY.

The communiqué of May 3rd says:—

Between the Adige and the Brenta an intense artillery duel took place. Enemy aeroplanes attempting to fly over the intervening mountainous region were repulsed by our aviators, who gave chase.

* * *

The communiqué of May 4th says:—

The greatest aerial activity prevailed in the whole theatre of operations. Enemy aeroplanes dropped bombs on the Upper Val Camonica, the Ansel valley, the Lower Isonzo plain, and on the towns of Ravenna and Cervia. A few persons were wounded and very slight damage was done.

Two of our airships last night bombarded enemy entrenchments, batteries, and camps in the vicinity of Rubbia, Merna, and Biglia, in the Vippacco (Wippach) valley, and the well-known aerodrome of Aisovizza, to the east of Gorizia. About 2 tons of explosives were dropped on the objectives with visibly very effective results. On the return journey one of our airships fell, from reasons still unknown, in enemy territory in the vicinity of Gorizia. The other airship returned unharmed to our lines.

[If, as stated, these Italian airships carried a ton of explosives apiece they must be extraordinarily efficient. The Austrian communiqué refers to a crew of four only as being in the wrecked vessel. Naturally the ship would carry as small a crew as possible in order to carry more bombs, but a ship which could carry a ton and yet be handled by four men seems unusual, to say the least of it.—Ed.]

* * *

The communiqué of May 5th says:—

An enemy aeroplane dropped four bombs on Limone (Lake Garda) without doing any damage to life or property. Attempts by enemy aeroplanes to raid our territory were repulsed by gunfire and by the prompt intervention of our chasing air squadrons.

* * *

The communiqué of May 8th says:—

A strong flotilla of our aeroplanes yesterday made a raid over the Valley of the Adige and dropped numerous bombs on Mattarello and Calliano, both concentration centres of enemy troops. All our aeroplanes returned without damage.

An enemy air squadron flew over the Valley of the Lower Isonzo and dropped bombs without causing any casualties or damage.

* * *

"La Gazzetta di Popolo," of Turin, states that the Germans have lost up to February 15th last 47 airships, 268 aeroplanes, and 1,400 men in them. Taking everything into consideration the airship figure seems about correct, but the aeroplane estimate is very much under-rated; also it seems a little difficult to account for so many men.

* * *

Some of the printable details of the would-be-great "raid" of the 27th ult. induce thought.

Four squadrons of five machines left simultaneously, early in the night, each from a different camp, to converge on the Italian lines of communication immediately "at the back of the front." Judging by the four machines afterwards captured it was a goodly fleet, quite up-to-date and exceedingly well-engined—mostly with the large 160 to 200 h.p. Mercs.

It was noticed that the enemy travelled in two strata, one very high, the other quite low—possibly to avoid air currents, but probably to distract our Ally's look-outs and gunners. Doubtless for the same reason they kept everyone on the *qui vive* all night only to attack at daybreak. In spite of these tactics and fine points we know that four "failed to return."

Of these, two were burnt by their crews, but the fine motor of that piloted by a Major is practically undamaged, the pilot's death having been caused by that old trouble—the breaking of the "safety" belt. The "waterflier," as Italy calls them, is also nearly perfect. It is a steel tube Viennese Löhner (No. 78) with central float, dual control and armoured round the seats. Luckily the very young naval men on board had only damp matches with them!

By orders of the Veronese Municipal Council some sweetmeats dropped by enemy 'planes, and hence thought to be germful, are in the hands of the Public Analyst, and the public is warned.

It is reported that five enemy aeroplanes dropped bombs on Brindisi on May 4th. Four patients in the hospital were killed and five wounded.

* * *

The death of Andrea Bobba in an air encounter at Verdun is reported from Paris. With his father the late aviator at one time prepared to enter the trade at Turin, of which city his parent was a citizen. His name is associated with the great pioneer exploits such as the Paris-Madrid and Paris-Rome flights. He also exhibited a machine which appeared at that time very well built and up to date at the unfortunate Italian Military Trials.

* * *

The Silver Medal 'for Valour' has been conferred on Sub-Lieut. Caffaratti for acts of bravery performed on the occasion mentioned in the Official of 12th ult. Also on Capt. Ercole and Lieut. Laureate, who though one of the motors was placed "hors de combat" and they had to eliminate the danger of fire breaking out, accomplished what they had been sent to do and brought their 300 Caproni machine home again from Lubiana.

Many of those officers, well known to the readers of THE AEROPLANE in the past, have been promoted to the rank of Major, as announced in the Military Bulletin of the 29th ult.

* * *

The good works of the seaplane men have still to be treated with great reticence because of the extreme importance of that service just now.

T. S. H.

GREECE.

The "Morning Post" correspondent sends the following account of the destruction of a Zeppelin near Salonika on May 5th, which differs materially from the official version:—

"Salonika, May 5th.

"A Zeppelin was brought down by a naval shell this morning at three o'clock while flying over Salonika harbour. It appeared at half past two, and was immediately picked up by searchlights from sea and land. It appeared to be at a height of 7,000 feet. Plainly visible in the yellow glare, it crossed the town and was turning over the Gulf when a shell burst just above, and it dived, amid the cheers of the Fleet, at an angle of 45 degrees towards the marshes at the mouth of the Vardar.

"Two explosions, probably of the petrol tank, occurred before it hit the ground, lighting up the sky. It now lies a wreck fifteen miles along the shores of the Gulf from the town.

"Later.

"The Zeppelin was apparently put out of its reckoning by the extinction of the electric lights of the town, while the gas remained burning.

"It hung about over the harbour while a French and English battleship crossed fire.

"The Zeppelin was winged by the British ship and made for the mouth of the Vardar. A British destroyer patrolling was within a mile of her as she came down, and fired two shots, one while in the air and one after she landed.

"She came down a quarter of an hour afterwards, and an explosion occurred as if the crew had set her afire.

"British officers who were first on the scene say she is a complete wreck. She was evidently of very large size. No bodies were found."

[From this one may deduce that the crew escaped, and the "Telegraph" correspondent states specifically that the crew are thought to have escaped into the marshes.—Ed.]

* * *

The "Morning Post" correspondent at Salonika says later:—

"French cavalry arrested the crew of the stranded Zeppelin. The Germans were almost naked. They had been floundering about in the darkness and had taken off their clothes to dry. The commander had been a Zeppelin pilot before the war. He says he took part in raids on the English coast, and also commanded the Zeppelin which destroyed the station at Vilna. This was his first journey to Salonika. His object was to bomb the Fleet, and especially the installations newly put up. He states that the Zeppelin had been flying for 34 hours."

* * *

An amusing story is told of the operations:—

Two or three small parties of bluejackets were landed to search for the members of the Zeppelin's crew, who might have been expected to offer resistance. Two of these patrols simultaneously caught a glimpse of each other through the dense reeds in the half-light of dawn.

"Hands up" shouted one party, levelling their rifles.

"Hands up, yourselves, you blighters," came the caustic answer, "we've been looking for you all the morning."

Fortunately each party recognised the unmistakable British note in the other's exclamation and nothing disastrous happened.

The crew set fire to the Zeppelin as soon as they reached the ground, having, of course, jettisoned their bombs and other impediments beforehand.

* * *

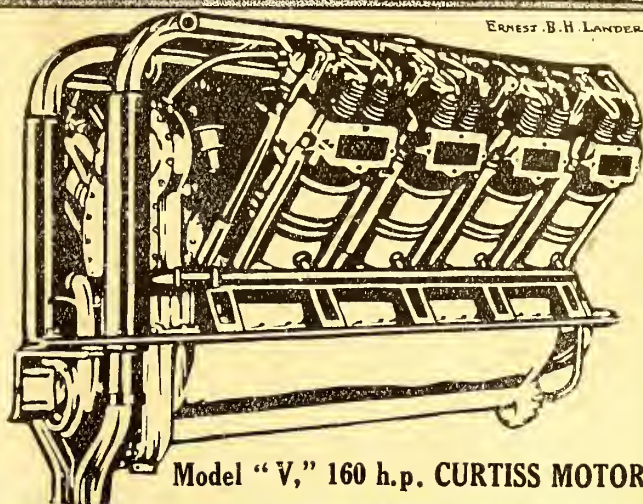
The 12 men of the Zeppelin crew captured by the French as they came out of the shelter of the thick reeds of the marshes stated that the Zeppelin came from Temesvar, in Hungary.

Directly they got over Salonika the searchlights that picked

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them up were of such unusual power, especially one of those of the Fleet, that they were dazzled and unable to pick up their bearings. At the same time shells began to burst all around them from all sides, and, according to their statement to the French, they were hit several times, one ballonnet being burst and one of the four motors hit and stopped.

The "Times" correspondent, who was a passenger in the old "Deutschland" when she smashed up in the Teutoburger Wold, said that, although the wrecked airship at Salonika was built in 1915, she did not differ materially in size or general arrangement from much earlier models, her size being nearly 600 feet in length and about 50 feet in height.

The crew admit that they bombarded Salonika in February.

TURKEY.

The communiqué of May 6th says:—

On the day of the capitulation of Kut-el-Amara one of our aeroplanes, piloted by Captain Schütz, succeeded in shooting down in an air fight an enemy aeroplane, which was captured by us. The pilot was found dead, but the observer was captured. On the same day Captain Schütz brought down a second machine, the occupants of which fell into our hands wounded.

* * *

The communiqué of May 8th says:—

On Saturday two enemy aeroplanes threw 10 bombs on a ship cruising near Akaba and slightly injured one soldier.

Off the Island of Imbros a monitor and a cruiser, supported by the observations of aeroplanes, threw 40 shells in the neighbourhood of Sedd-ul-Bahr without effect. One of our aeroplanes hit the enemy cruiser with two bombs, and the vessel, wrapped in smoke, took to the open sea.

In the vicinity of the coast islands a monitor, a torpedo-boat, and two enemy aeroplanes opened fire against some coast points, but were obliged by the reply of our artillery to cease fire. The monitor and torpedo-boat were both hit.

SWITZERLAND.

The Swiss papers comment with considerable heat on the German habit of doing whatever suits them and apologising abjectly afterwards. The very last flight (on 26th ult.) over Swiss territory, again Porrentruy, was apologised for and settled within two days. This was the thirteenth violation of their neutrality on this wise and "c'est assez" is the verdict of most of the Swiss papers.

T. S. H.

NORWAY.

The remains of the L.20 have been blown up by the orders of the Norwegian Military authorities. The crew, who refused their parole, have been put under close arrest. It is reported from some sources that the L.20 was hit by British anti-aircraft guns and had her steering gear damaged.

HOLLAND.

It is reported that a British aeroplane landed on Dutch territory near Sluis on May 4th. It is said that the pilot was chased out of Belgium by a German pilot, after landing on Belgian territory.

U.S.A.

The Aeromarine Plane and Motor Co. of New York have acquired a large tract of land suitable for an aviation field at Keyport, New Jersey. The aerodrome adjoins the water's edge, so that it is adaptable as a seaplane station. As a matter of fact, the New Jersey State Naval Reserve have already erected hangars at the aerodrome with a view to making it their training headquarters.

The Nutley factory are producing large quantities of the 85-90 direct drive six-cylinder motor and a twelve-cylinder engine is nearing completion.

JAPAN.

It is reported that on March 21st, at about 11.30, three seaplanes started from the naval aerodrome at Oihama, near Yokosuka, and made a trip to Tokio, where they were going to fly over Ueno Park in celebration of the opening of the Marine Exhibition there. One of the machines got out of order and fell, crashing down on the roof of the residence of Major-General Machida, at Akefuncho, Shiba, at about 12.30.

Lieut. Abe was killed instantly, and Lieut. Tongu was seriously injured. The injured officer was at once removed to hospital, but died shortly after admission. Much damage was done to the house on which the aeroplane fell.

AUSTRALIA.

Mr. A. M. Simpson has offered the sum of £2,250 to the Australian Government for the purchase of a Gnome-engined biplane complete with machine-gun. The Minister of Defence accepted the offer with gratitude.

CANADA.

A gratuity of £30 will be given by the Canadian Government to every Canadian who obtains a commission in the R.F.C. and undertakes to serve with the Canadian Flying Corps should one be formed.

THE JUDGES OF THE FLYING SERVICES.

It is stated that the "Judicial Committee" appointed by the Government to inquire into the organisation and equipment of the Flying Services is composed as follows:—

Mr. Justice Bailhache, Mr. Butcher, K.C., M.P., Mr. Shortt, K.C., M.P., Mr. J. H. Balfour-Browne, K.C., Sir Charles Parsons, K.C.B., Mr. Chas. Bright, and the Secretary Mr. D. Cotes-Preedy.

If it is necessary to be a lawyer in order to have a judicial mind this Committee should certainly dispense the wisdom of Solomon, but there are those who would prefer that a Committee appointed for such a purpose should have some acquaintance with Naval, Military and Aeronautical affairs.

On the other hand, if entire ignorance of a subject ensures the approaching of that subject with absolute freedom from prejudice, then one may be satisfied that this Committee will not start with a ready-made judgment.

No member of the Committee is known to have taken any interest in the Navy, Army, or Flying Services at any time, and the only connection between the Committee and aeronautics is that many years ago Mr. Horace Short was concerned with the Hon. Charles Parsons (now Sir Charles) in steam turbine experiments and patents, and in the production of the Parsons' Auxetophone. The link is slight and somewhat aged.

Mr. Justice Bailhache is an excellent commercial lawyer, which may be a fact of value when considering the waste of men and material. Mr. Balfour-Browne is the author of a work on the "Law of Carriers," so may be of use in deciding what loads aeroplanes should take. Mr. Butcher has written on "Viscous Fluids in Motion," which might give him some acquaintance with air. Mr. Shortt is the Recorder of a North-Eastern city which has seen Zeppelins and felt their bombs, so may be sympathetic. Mr. Charles Bright is said to be an authority on cables of the electric species, but not on the kind used in aircraft. He once held a Militia Commission and has written a book on "Engineering Wonders of the World." He may find further grounds for wonder in the Royal Aircraft Factory.

Having had some experience of lawyers' ideas of running a nation at war, one is not overwhelmed with confidence in lawyers' ability to organise an Air Service.—C. G. G.

MORE R.A.F. MORALS.

Some few days ago a singularly innocent naval officer was standing on an aerodrome, talking to an official of the Royal Aircraft Factory, when a highly successful aeroplane of new type and of private design and manufacture flew by. The sailor turned to the said official and remarked that he supposed that as soon as this machine and certain others of a similar nature which had been built to compete with it had passed their tests they would be sent to France for trial under active service conditions. Which, of course, anyone with common sense would consider the right thing to do.

The official's reply was that the R.A.F. did not propose that anything of the sort should be done. One would have imagined that he commanded the R.N.A.S. and R.F.C. together from the way he spoke. His intention was that the machines of the various competing firms should be sent to Farnborough and examined in detail. After which, the R.A.F. would adopt any good points which might be found among them and embody those points in their own machine of that type, which would be standardised and sent to France in due course, when it was arranged that it should be produced in quantities by "contractors."

One remembers that the 80-h.p. Avro was a year previous to the B.E.2c., and that the de Havilland scout has been in use for something like six months, and the R.A.F. imitation, the F.E.8, is not yet being delivered in quantities, so that one may assume that if the new privately designed machines are ready now and could be delivered in quantities six weeks hence if subcontracted out to their own designers' drawings, it will be at least twelve months before they can be delivered in quantities by the R.A.F.'s favourite contracting firms.

By the time the R.A.F. has had time to appropriate the best ideas of other designers, to fit them more or less together into an alleged R.A.F. design, to find out all the mistakes they have made in the combination, to make the R.A.F. "composite" fly decently, to issue drawings to contractors, to send out corrected drawings, to send out corrections in the corrections, to alter fundamental errors in the "composite" structure, and to get through all the usual routine of R.A.F. mistakes in design, construction, and material, there is some chance of the machine being delivered about the Autumn of 1917. By which time the Germans will know all about it and have got something better—as usual.

One commends to officers commanding R.N.A.S. and R.F.C. the idea that they should for once see that the "Trade" gets fair play, for they must surely know, after more than twenty months of war, that they can get aeroplanes better and quicker from independent designers than through the R.A.F.

One also commends the utterances of the official quoted at the beginning of this article to Lt.-Col. (temp. T.F.) Mervyn O'Gorman, C.B., Superintendent of the R.A.F. As mentioned not long ago, Mr. O'Gorman was born an Irish gentleman, and one feels that he cannot conscientiously approve of the habitual

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attitude of the staff of the R.A.F. towards private manufacturers who have done so much for the advancement of aeroplane design and construction. One doubts whether Mr. O'Gorman's fellow-countrymen of the Sinn Fein Society have actually done as much harm to the progress of Ireland as the staff of the R.A.F. has done to the progress of aircraft design and construction in England.—C. G. G.

THE INVASIONS OF ENGLAND.

At mid-day on May 3rd Zeppelin L20 came down on the water of Hafns Firth on the Jaederen Coast of Norway after bouncing over a neck of land. The crew were rescued, some of them injured. Apparently the airship, which had taken part in the raid of May 2nd-3rd, was baffled by a south-easterly wind and shortage of petrol, and could not make sufficient headway to reach Germany. One report says that the Zeppelin was 650 ft. long and 80 ft. in diameter. The latter figure is obviously untrue, and the former at least improbable.

It is reported from Denmark that the L.7, brought down by British cruisers off Schleswig, could be seen from the Danish Horns Reef. It was near this spot that the airship was observed to be hit. Flames were seen and the airship was driven eastward by the wind off Blaavandshuk, whence it was seen to drop into the water and rapidly disappear beneath the surface.

The crews of Hull trawlers fishing in the North Sea last week report that nine Zeppelins were engaged in the raid on the English and Scottish coasts on May 2nd. They sighted the squadron of enemy airships about mid-day on Tuesday. Two of the five Zeppelins which came within view circled over the fishing fleet and later two other Zeppelins appeared, and long before dusk the number had been increased to nine. While several of the airships were scouting others kept immediately over the fishing vessels, which headed for the coast. The Zeppelins were flying at a low altitude, one, according to a skipper, being at a height of not more than 100 ft. The Zeppelins hovered around for eight or nine hours and did not disappear until darkness set in. No bombs were dropped on the fleet. One of the trawlers fired a rocket for assistance.

It is reported from Amsterdam that fishermen entering the port of Ameland on May 6th reported sighting Zeppelin L.9 evidently badly damaged.

AIR CURRENTS.

The Leicester Chamber of Commerce has given £2,100 for the presentation of an aeroplane to the Government of Canada. Why? When Canada has been supplying gift aeroplanes to Great Britain?

A fine of £2 was imposed on the assistant works manager of a local aeroplane factory at Kingston for allowing a bright light to be seen through one of the gateways.

Considerable interest was aroused in the City of London on May 3rd by an airship and two balloons, which, after passing over London, proceeded towards the south-east. The popular illusion seemed to be that they were setting out to repel an immediate aerial invasion.

For striking a match on May 3rd by night in a street of a town on the north-east coast just about the time Zeppelins were in the vicinity, a man was yesterday sentenced at the local police-court to one month's imprisonment. He was apparently looking for trouble with a light, and found it! Has anyone taken the trouble to measure precisely at what extreme range it is possible to see the light of a single match? It might be as well for someone to collect irrefutable evidence in readiness for any further manifestations of officialdom rampant.

Mr. Joseph Cowen of Newcastle has increased his offer to the first "airman" to bring down a Zeppelin in British territorial waters or on English territory to £2,000.

One hopes that the members of the Flying Services will not be induced by this offer to await a further advance to £3,000 before endeavouring to do their duty when opportunity offers. The sudden rise in Mr. Cowen's price seems to suggest that he thought the original offer was insufficient to bring results.

Mr. Cowen is the proprietor of the "Newcastle Daily Chronicle," and he and his sister inherited the useful sum of £491,000 from their father. He is thus in a position to do a great deal for the Flying Services if he feels so disposed.

If Mr. Cowen is actuated solely by a desire to encourage his aerial defenders, one would suggest that his £2,000 would be better invested in the Flying Services Fund or in a gift to the Royal Flying Corps Hospital.—D. W. T.

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THE MANN BIPLANE.

It is stated that the War Office has placed an order for a "Mann Battleplane, M.2A"; and regard the type with favour, because of the field of view and fire which enable guns to be worked both front and rear. The firm states that they have received the utmost courtesy and liberal treatment at the hands of the Aeronautical Inspection Department, which treatment has been in marked contrast to the attitude adopted by so-called technical experts of other departments in the past.

"M.2," with a 125-h.p. Anzani, has been scrapped, and a new machine, designed for a higher-powered engine, is in hand, and is to be known as "M.2A."

The type with the engine in front and twin-propeller drive has been strongly advocated in this paper and its predecessor, "The Aero," many years ago—first, in 1910, to be exact. The chain-drive was considered in the light of later knowledge to be unsuitable for big powers, and this paper said so last year. With proper engineering design in detail and with shaft and worm-drive, the type could be made very successful up to the limiting size for central loading.

CAUDRON EXTENSIONS.

Travellers along the Edgware Road can hardly fail to have noticed the steady expansion of the British Caudron works. A large erecting shop, doping department, wood-working shed and saw-mill are now rapidly approaching completion, and the premises occupy a total frontage of 350 ft. and a depth of 115 ft.

The utility of the various types of Caudrons, whether for training purposes or for active service requirements, has been amply demonstrated long ago, and the expansion of the works at Cricklewood, to say nothing of other important developments elsewhere, indicates an increasing demand.—D. W. T.

THE R.N.A.S. COMFORTS FUND.

Readers of THE AEROPLANE who have contributed to the Comforts Fund will be interested to hear that a case of assorted articles has safely reached Lieut.-Colonel Gordon's squadron in Mesopotamia, and was much appreciated.

The following cash contributions are acknowledged: The Sunbeam Motor Car Co., Ltd., £20; (April 20th) Mrs. Millar, £1 14s. Total to date (of which but a very small amount remains unspent), £1,835 7s. 1d.

Further contributions in cash and kind should be sent to Mrs. Sueter, The Howe, Watlington, Oxon.

AEROPLANE DESIGN.

There is already a very big demand for the book containing Captain F. S. Barnwell's articles on "Aeroplane Design," and Lieutenant W. H. Sayers' articles on "Inherent Stability," published recently.

Both subjects are dealt with in a manner easily understood by anyone with any mechanical or engineering knowledge, and they should be of very great value to officers and to air mechanics alike. The price of the book—post free 2s. 9d., from The Wm. Dawson Publishing Co., Ltd., 2, Breems Buildings, E.C.—places it within the means of everyone connected with aviation.

Orders should be sent along as promptly as possible, as owing to the scarcity of paper it may be impossible to supply late orders.

THE AIRCRAFT SUPPLIES LIST.

The illustrated list for May, issued by the Aircraft Supplies Company, will interest all manufacturers of aircraft. A second edition with a supplementary sheet has been published already, a new stock of hex. nuts having arrived, while the total supply of shackle pins was sold out. Immediate arrangements, however, were made for new machinery which will turn out a further quantity in a week or two. Mr. Mansfield is prepared to supply every metal part for any kind of aircraft.

A printers' error, by the way, has crept into list A, the offer of "80. only" nuts 117a, being intended for 80 gross. The same remark applies to the following items also.

THE BRITISH HEIGHT RECORD.

It may be permissible to mention that the Clerget-Sopwith biplane on which Mr. Harry Hawker recently broke the British height record was fitted with a Lang propeller, which was of slightly finer pitch than that used for normal flying on this machine. It is worthy of note that the variation in the propeller speed was only a matter of 50 r.p.m. throughout the climb.

NOTICE TO READERS OF "THE AEROPLANE."—In view of the restrictions about to be imposed by the Government on the importation of paper, and of material for making paper, and of the consequent arbitrary limitation of supplies to individual newspapers, readers who wish to be sure of obtaining "THE AEROPLANE" regularly should place an order for the paper with a newsagent or bookstall clerk, or should become regular postal subscribers. Owing to the scarcity of paper it may be impossible in future to provide for a chance demand.

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THE ROYAL AIRCADÉMY.

The influence of aircraft is making itself felt in every walk of life. Having darkened our streets and lightened our Parliamentary debates, it is now lending fresh colour to the annual summer exhibition of the Royal Academy of Arts, which always opens on the first of May, whether we like it or not.

There are several exhibits this year which depict, more or less accurately, scenes of aerial warfare, and one looks forward with mixed feelings to the increased output of pictures of this kind next year.

The problem pictures of the Hon. John Collier will now take a back seat, metaphorically speaking, while groups of visitors, on the strength of an afternoon at Hendon in 1913, will discuss the technical points of "Fokker Fcdder in Flanders," "A Midsummer Night's Raid," "Bringing Home the Wreck of the F.E.," "Portrait of a Quirk," "The Pupil and His Fee: A Study," "The Pit and the Pemberton—His Majesty's Theatre, April, 1916" (after E. A. Poe) . . . and so on.

This year Mr. W. L. Wyllie, R.A., exhibits "Spotting for the Fleet, Dardanelles" (345), an excellent study of a seaplane on active service [Though one who has flown there says that it is not a bit like the Dardanelles.—Ed.]; "The Hooe Salient" (476), by the same artist, is a fine picture of that part of the front as seen from a height of five or six thousand feet, a German aeroplane having a busy time of it with a Caudron and a B.E.2c. in the foreground, or whatever one calls the nearest part of the sky.

"A Blériot over the Kentish Coast" (456), by Mr. Charles G. Kennaway, is very well done, though one cannot help feeling that an Aviatik would have been more appropriate.

The "Popular" raid of September 8th last is immortalised by Mr. Andrew C. Gow, R.A., in his picture (803) showing Piccadilly Circus, with a Zeppelin, bursting shells (not too near), and searchlights complete. [One cannot quite understand how the Censor permitted to pass a picture showing that Piccadilly Circus exists and that a Zeppelin could be seen from it.—Ed.]

Another exhibitor, Mr. E. Bale, in "The First Act of War on London" (1,014), gives his own impression of the same raid as seen from his house. He was so impressed with the sight that he has given the Zeppelin a large halo which would have done credit to any saint in the calendar. This picture will probably be popular in Berlin.

It has fallen to the lot of Mr. Gordon Crosby to provide the popular aircraft study of the season. "The Glorious Achievement of Lieut. Warneford, V.C." (981), is just the kind of picture the public will like. Even so primitive a prophet as C

Moore himself could have prophesied that this subject was inevitable—though no doubt he did not—and certainly it is well done. The Morane, however, has an unusual and distinct dihedral.

In the sculpture gallery is a group entitled "A Zeppelin Triumph" (1,765), by Mr. S. Nicholson Babb. It depicts a dead mother and child near an overturned cradle, and on the base are inscribed the words, "All our airships returned safely.—Berlin Official." [Rather a feeble effort to achieve popularity and to attract public attention.—Ed.]

Another group, "The Pursuit of Happiness" (1,819), has no apparent connection with the Flying Services, either in treatment or title, but according to the official catalogue it is the work of Mr. Alfred Buxton, of the Royal Flying Corps.

Apart from the exhibits referred to, Burlington House is very much as usual, and there are, as usual, many pictures which one should lose no time in seeing.—D. W. T.

THE WEEK-END AT HENDON.

There is little of interest to record about the past week-end at Hendon. A strong wind prevailed, with occasional showery intervals, and the pupils and public stayed away.

On Sunday a high flight was made by the always energetic Mr. Birchenough in a de Havilland scout. The Grahame-White three-seater was also out, and two Curtiss machines appeared.

Lieut. W. H. Ewen, R.F.C., motored over from Farnborough, accompanied by Mrs. Ewen, to renew acquaintance with the aerodrome, where they were, until two years ago, among the most regular workers.

As THE AEROPLANE representative left, Mr. Virgilio was trying the air in a Beatty-Caudron, but from the uncomfortable way he was tossed about there seemed little prospect of school-work.

A new tenant has arrived at Hendon, one of the hangars bearing the name of Fairfax Naulty and Son, a firm understood to be engaged on experimental work.—D. W. T.

SCHOOL REPORTS. HENDON.

AT THE GRAHAME-WHITE SCHOOL.

Instructors for the week: Messrs. Biard, Hale, Manton, Pashley, Russell, and Winter.

Straights with Inst.: Messrs. De Beer, Bathurst, Burrell, Cooper, Forster, Goodhart, Turner, Matthews, Parkinson, Rabourdin, Sloden, Smith, Spencer, Hillaby, and Hodgkinson.

Eights with Inst.: Messrs. Eichelbrenner, Williams (F.), Box.

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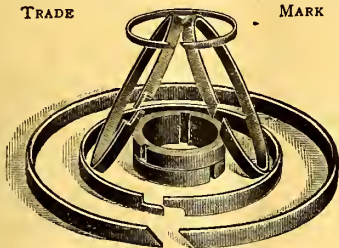
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AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors for the week: Messrs. W. T. Warren, M. G. Smiles, W. L. Hay, and W. T. Warren, jun.

Pupils doing straights or rolling alone: Messrs. Birkbeck, Whittingham, Kent, Evernden, and Quayle, rolling. Messrs. Dawson, Pulford, Crawford, Egelstaff, Woods, and Moore, straights.

Pupils flying figures of eight or circuits alone: Messrs. Frost, Foley, Creaghen, and Aldous.

Certificates were taken during the week by Messrs. S. J. Frost and G. H. Foley.

Machines in use: Three L. and P. tractor biplanes.

AT THE HALL SCHOOL.

Pupils receiving instruction during the week: Messrs. Smith, Cosgrave, Mahoney, Duncan, Clegg, Milburn, Halliday, Rochford, Dickson, Rand, Hooker, Pennell, Capt Deane, Collier, Gaskell, Armitage, Dodds, Neal, Illingworth, Davies, Robinson and Thom.

Certificates were taken by Messrs. Neal, Thom, Milburn.

Instructors for the week: Messrs. P. G. Allen, C. Bell, C. M. Hill and H. F. Stevens.

AT THE BEATTY SCHOOL.

Instructors for the week: Messrs. G. W. Beatty, R. W. Kenworthy, G. Virgilio, H. Sykes, A. E. Mitchell, H. Fawcett.

Pupils out during the week: Messrs. d'Allesina, Schollaert, Jaquin, Atkin, Smith, Tjaarda, Cuthbert, Barrow, Mossop, Sellars, Stanley, Hoskins, Martin, Roberts, Knox, Brewerton, Phillips, Dowding, Gaskin, Earl, Skeet, Davy, Garlick, Gliksten, Kay, McPherson, Mitchell, New, Jones, Drewery.

Certificate was taken by Mr. d'Allesina on Wednesday.

Machines in use: Beatty-Wright dual-control and single-seater propeller biplanes, Caudron dual-control and single-seater tractor biplanes.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors for the week: Messrs. Edouard Baumann, Felix Ruffy, Ami Baumann, André Thomsen, Clarence Winchester.

Pupils with Instructor: Messrs. Dobson, Fanshawe, Wilson, Fraser, Straus, Carr, Bailey, Johnstone, Westlake, Portella, Maya, Torres, Edgar, Di Balme, Williams.

Pupils doing straights or rolling: Messrs. Williams, Bailey, Whitaker, Winter, Fraser, May, Wood.

Circuits: Mr. Philip Wood doing good circuits at 500 ft.

Certificate was taken during the week by Mr. Philip Wood, who did his glide from over 1,000 ft.

Machines in use: 60 h.p. and 50 h.p. Ruffy-Baumann tractor biplanes.

BOURNEMOUTH.

AT THE BOURNEMOUTH FLYING SCHOOL.

Instructors for the week: Messrs. S. Summerfield, Brynildsen.

Pupils rolling: Messrs. Adamson, Kennedy, J. L. Barlow, Brandon, Goodinnue, Pritt, Scaramanga, Daniels.

Straights alone: Messrs. Smith, J. Wilson, C. Wilson, Morley, G. Mouton and Morris.

Half circuits alone: Messrs. W. Mouton, Simpson, G. Mouton.

Eights or circles alone: Messrs. W. Mouton, G. Mouton, Simpson.

Certificate taken by Mr. W. Mouton in very good style.

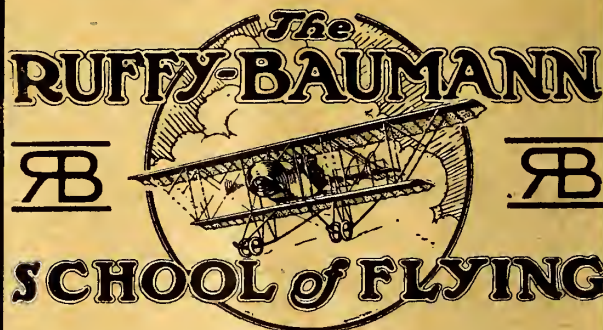
A good-sized crowd visited the aerodrome on Wednesday and witnessed some very interesting fancy flying by Mr. Summerfield. On one of his flights he attained a height of over 3,000 ft. in very bumpy weather, and spiralled down to earth with engine off, landing on the same spot he started from. Several passengers enjoyed high flights with the same pilot, reaching close on 2,000 ft.

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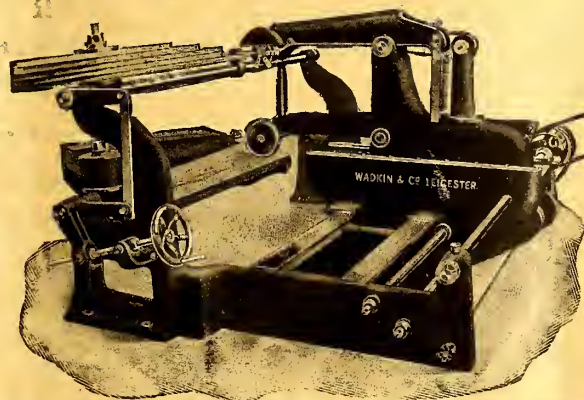
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AIRSHIP ENGINEERING.—(Continued.)

BY E. T. WILLOWS.

The construction of airships, like all other branches of engineering, is now beginning to resolve itself into general principles to which all types conform, differing only in detail application. Many wild ideas have been put forward from time to time both here and in other countries threatening revolutionary departures from the accepted standards of construction. Most of these can be dismissed from a perusal of the drawings alone, without it being necessary to go to the trouble and expense of building the actual thing.

The airship, both non-rigid and rigid, is gradually being evolved to a useful degree by detail improvements alone, and in matters of controllability and speed the non-rigid in this country and the rigid in Germany are fast realising even the most sanguine hopes of those who have faithfully adhered to their cause.

One hears on all sides surprise that the Germans have been able to bring their Zeppelin airships up to a point where they can make some 20 or so long-distance raids with impunity into this country without more being known or realised about them before the war. Great prominence has always been given to airship disasters, especially when they have been Zeppelins, and no doubt the Germans have helped this prominence by giving full information and facility for reporting these occurrences, which was probably part of their policy in recent years to put other nations off the scent.

There has really been no excuse for overlooking the amount of work accomplished by the German airships in the public passenger-carrying capacity for the couple of years previous to the outbreak of war, and the authorities must have been in full possession of all this data, but it seems that there has always been a tendency to look upon the disaster side of the airship venture as giving the true measure of the "efficiency," a view which apparently suited the view of those Ministers responsible to the country for our needs in this work.

The record of the Zeppelin Co. for 1912, which states that of the 334 days of the financial year there were 308 when one or other of the various units of the Zeppelin fleet was in the air, was most valuable and instructive and full of warning for this country. It showed that this type of airship as developed up to that year could be operated in the average winds of the year, which is an achievement laughed at by press and expert alike a couple of years ago.

In the case of the passenger Zeppelin "Viktoria Luise," 225 trips covering 17,737 miles were made, and 4,336 people including crew were taken into the air, which, when the fare for a 2 hours' run is £10 a head, makes the running of a ship of this sort a paying commercial proposition.

As to the fleet of airships Germany could have commanded for war, the numbers must have at that time approximated 30, of which eight were over 10,000 cubic metres capacity and of "rigid" construction.

The smaller non-rigids of the Parseval and Gross systems can certainly be made of great use and have the advantage of being transported in a deflated condition.

From figures published it appears that the airships on order for the German Government then were four Schütte-Lanz, three Zeppelins, two Parsevals, one Gross. Then there were always a couple of passenger Zeppelins in course of construction, and these are just as efficient as the military ships and can in a matter of a few weeks be made as such, as was done in the case of No. 15, which was intended for the "Delag" Company, the concern which ran the passenger-carrying ships.

So that Germany could count on having another 10 first-class airships ready before this country could have possibly produced a couple, unless a dozen or so of the big shipbuilding yards could have been induced to "down tools" on their shipping orders of which apparently they had enough to keep them going full time for eighteen months, and to have built at once to the designs of a sort of clearing-house of the available knowledge in the country—a phantasy which conservative England could have hardly hoped to have realised.

The question of accommodation is just as serious a one as that of the airships themselves. A shed sufficiently large to provide accommodation for a couple of large "rigid" airships takes a twelvemonth to complete and costs a matter of £60,000, yet Germany could number at that time over 30 sheds, of which a dozen or so were able to accommodate two of the largest ships side by side.

In England there was only one building capable of housing a rigid type airship, that at Barrow in which the ill-fated Naval airship No. I. was constructed. The only other sheds were one in North London, given to the War Office by the generosity of the "Daily Mail," and those at the Military Station at Farnborough, but these were not capable of housing anything larger than a medium-sized non-rigid vessel.

The Admiralty had then placed a contract for the construction of a large shed capable of housing two rigids near Chatham.

The big German municipalities have set an example which should be followed by all the big English cities. In nearly every case money has been found, part by the municipality itself and part by public subscription, to lay out an aerodrome and build a large airship hall, and the Government or the "Delag" Company were invited to send a Zeppelin to give the place a "send-off."

In some cases, such as Hamburg, the place afterwards became an important military centre for aircraft. It is to be hoped that when the every-day Britisher really awakens, as he appears to be going to do shortly, and realises what our position really is, that he will demand the same system in this country, as it is only by having many harbours of refuge that extensive use can be made of airships.

It is essentially the fact that there are now so many large sheds and the admirable system of weather reports that has brought about the extensive use of the airship in Germany.

There seems no doubt that the incident of the landing of a Zeppelin at Luneville in France about a year before the war assured our authorities that at last the whole secrets and methods of construction of the Zeppelin were available should it be found at any time they were worth considering, and that they might safely put the drawings and photographs obtained at the time away in a "pigeon-hole" as memorative of an interesting incident.

How one can expect to learn and digest the problems that have led up to the construction of such a ship by a mere cursory examination and the taking of dimensions and photographs is a little difficult for an engineer to understand, but such seems to have been the opinion of a number of the so-called authorities at the time.

Very little, in the present writer's opinion, would be learned of how a Zeppelin is constructed by a few hours' free run of the ship. The general features of construction have been known, and, as a matter of fact, have not been altered much since the first ship was built.

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Many absurd statements were made at the time by the daily press as to the jealously guarded secrets of the Germans being given away upon a "silver plate" to France in one moment. It would necessitate a far greater sacrifice than the fact of one complete Zeppelin being in the hands of the French for a few hours.

In fact it would entail transporting the whole of the works at Friedrichshafen, lock, stock and barrel, plus the works staff, into the rival's hands before any real use could come of it.

About as much knowledge was gained over this incident by the French and also by some of our own countrymen, if rumour is correct, as would be obtained by the motor designers and constructors of Coventry, if the latest example of a Rolls-Royce (a complete car, let it be understood, not a chassis) were suddenly waylaid while passing through the town and detained for a few hours whilst rules, calipers, cameras, etc. were vigorously applied.

Had the French so prolonged the Customs formalities and their official inquiries so that the balloonets were becoming fast depleted of their hydrogen, the ship may have eventually thought fit to roll over upon her side and with the aid of a stiff breeze begin to expose some more informative parts of her anatomy than those accessible from the gondolas and gangways.

A PRESENTATION.

On April 20th Mr. O. L. Mellersh, manager of the Aviation Department, the Brush Electrical Engineering Co., Ltd., Loughborough, was presented with a silver rose bowl by the factory employees to mark the occasion of his marriage on April 25th.

The presentation was made by one of the workers, Mr. A. C. Self, who intimated to his fellow workers the pleasure it gave him to call them together for a purpose other than a dispute, and congratulated them on the unanimity with which they had received the proposal that the gift should be made.

Mr. Mellersh in acknowledging the presentation paid a hearty tribute to the loyal manner in which all had stood by him, and stated that those best able to judge considered the work of the department second to none in the country. This was the testimony of those for whom the work was being done, and did not necessarily represent his personal opinion.

AN INTEGRAL MOVE.

The Integral Propeller Co., Ltd., has moved to new and much larger works at The Hyde, Hendon, N.W. The firm's telegraphic address is now "Aviprop, Hyde, London," and the telephone number Kingsbury 104. All correspondence should be addressed as above.

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Aeroplane constructors who experience any difficulty in obtaining supplies of rubber petrol tubing may be glad to know that Harold, Harley & Co., of Beckton Road, Plaistow, E., have considerable stocks of 5-16 in. and 1 in. internal diameter. Other sizes can be supplied to order at short notice. The tubing is of high quality and should fulfil satisfactorily the needs of the trade.

THE OVER-SEAS CLUB.

The members of the Over-Seas Club celebrated Empire Day, 1916, by presenting to the R.F.C. a number of biplanes.

The following are the most recent gifts subscribed to the Imperial aircraft flotilla:—

Nos. 58 to 60, £1,500 each.—"Many Krobo," presented by the Chiefs and people of Eastern Krobo, Gold Coast; "New Juaben," by the Head Chief, Chiefs, and people of the New Juaben Settlement and "Saran," by the residents of Saran, through the District Officer, Mr. F. M. Luce, I.C.S.

No. 61.—"Jamaica No. 2," £2,250, presented by the people of Jamaica, through the Jamaica Aeroplane Fund Committee.

No. 62.—"John Macaulay" (native of Edinburgh), £1,500, presented by Mrs. H. P. Stromberg, in memory of her late father.

Nos. 63 to 68.—£1,500 each, "Over-Seas Club Empire Day, 1916, Nos. 1 to 6," all presented by members of the Over-Seas Club.

Since last Empire Day 68 aeroplanes have been presented to the British Government through the Over-Seas Club. The following letter has been received by the hon. secretary of the club from Lord Stamfordham:—

I have received and laid before the King, the patron of the Over-Seas Club, a copy of their official monthly journal, which you have been good enough to send for His Majesty's acceptance. The King congratulates the management of the club upon the very successful work which has been achieved during the past 18 months.

The sum of £1,500 has been contributed by the Omanhene, Chiefs, and people of Kwahu in the Gold Coast Colony, for the purchase of an aeroplane for presentation to His Majesty's forces. This is the eighth aeroplane to be presented by the colony.

At the annual meeting of the London Chamber of Commerce, Lord Desborough announced that, as president of the British Imperial Air Fleet, he had received from the Leicester Chamber of Commerce a cheque for £2,100 for the presentation of an aeroplane to the Government of Canada. The aeroplane would be used in the war, and at the close of hostilities would be stored in Canada as a memento. [In a very small glass case.—Ed.]

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The Foster Engineering Co., Ltd., of Wimbledon, are in a position to undertake the making of certain small metal parts for the aeroplane trade, and the announcement should be of interest to manufacturers.

A member of the staff of THE AEROPLANE visited the firm's extensive premises at Wimbledon, and was given an opportunity to examine the extremely accurate and high-class work of various description which the firm is turning out. Certain extensions of the present works are in contemplation, and if sufficient support is received from the aeroplane trade these extensions will be re-

served to aeroplane work solely. A firm of the standing and reputation enjoyed by the Foster Engineering Co. should very quickly receive such support as will justify them in taking this step.

THE NEW DARRACQ NAME.

A. Darracq and Co. (1905), Ltd., have formed a new company (in which they are solely interested) for the purpose of carrying on the business conducted at the Townmead Works, Fulham, S.W. The name of the new company is the Darracq Motor Engineering Co., Ltd., and all communications regarding aircraft work should be addressed as above.



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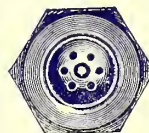
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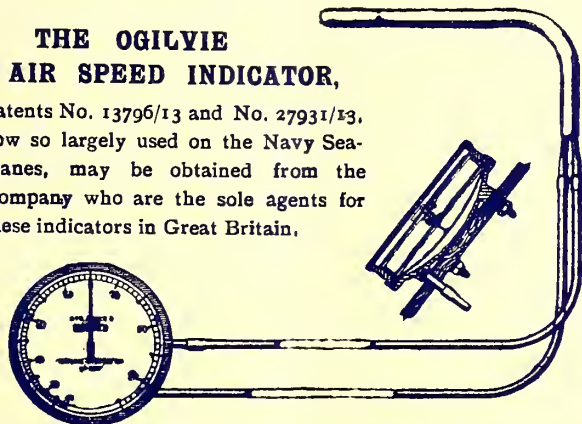
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THE AEROPLANE

WEDNESDAY, MAY 17, 1916

Edited by C. C. Grey

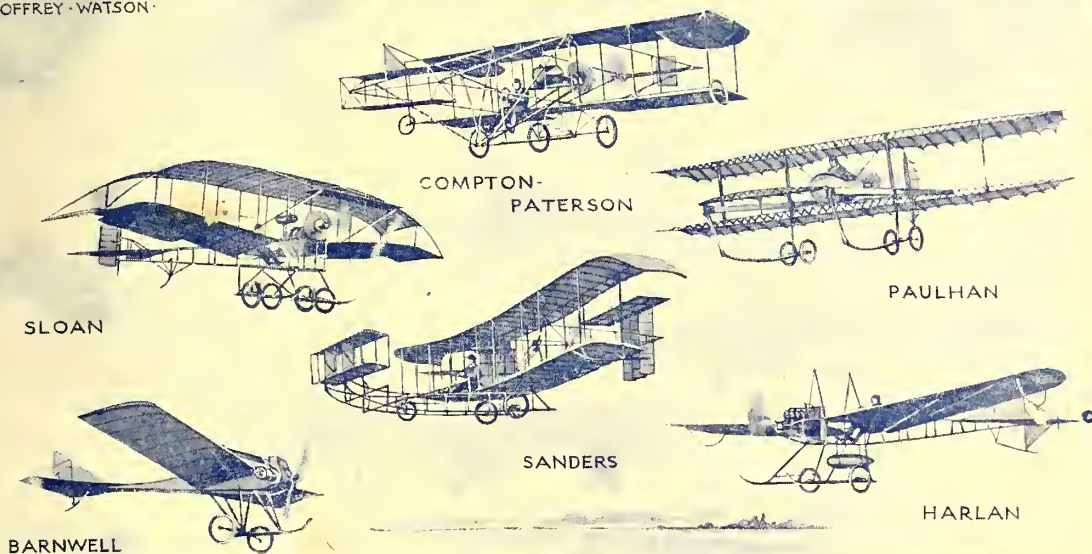
Vol. X. No. 20

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MILESTONES—XXIX

·GEOFFREY·WATSON·



1911 produced some interesting machines. The Compton-Paterson biplane was very similar to the early Curtiss pusher; it had a 50-h.p. Gnome engine. The Sloan bicurve was a French attempt at inherent stability with a 50-h.p. Gnome and a tractor screw. The Paulhan biplane was an attempt to make a machine for military purposes which would fold up readily for transport. The Sanders biplane was a British biplane intended for rough service. The Barnwell monoplane was the first Scottish machine to fly; it had a horizontally-opposed Scottish engine. The Harlan monoplane was an early German effort; note position of petrol tank.

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ON THE NEED FOR A CROMWELL.

At the time of writing, some days before this paper appears—thanks to shortage of labour all round—only a semi-official announcement has been made that Lord Curzon is to be the First Air Minister, nor is it certain that there is to be an Air Minister at all, though one assumes that there will be a Cabinet Minister interested in Air, if only as chairman of a refurbished Joint Committee like that from which Lord Derby and Lord Montagu resigned, and with a trifle more power.

Whoever he may be one does not envy him his job. An absolute dictator who was also a genius in organisation might evolve a real Air Service—in addition to the R.N.A.S. and R.F.C.—in about twelve months' time, but there seems no prospect of an organising genius, or, indeed, a really big man of any kind, being appointed, and it is absolutely certain that if such a man were appointed he would be so hindered under this Government by political considerations, internal intrigues, and Unseen Hands, that he would find his every movement hampered.

When one looks at the only two opportunities for Dictatorships this war has given one sees how impossible is the idea of anyone having absolute command over anything.

When Lord Kitchener was made Minister of War he might have become Dictator of the British Empire, for people of all ranks and classes were crying aloud for a man to lead them then, just as they are now, and they believed in Lord Kitchener as the strong, silent, and ideally efficient man of their dreams—inspired mostly by the novels of the late Mr. Seton Merriman. Somehow Lord Kitchener just missed his opportunity, and though those who are on the inside have as high an opinion as ever of his energy and ability as an organiser and of his love of hard work, he has lost his chance of doing the great thing which even Cromwell failed to do, namely, making himself Protector of both King and Country.

Whether he was too old to do this thing, or whether the political clog was too heavy for him, one cannot say.

Again, during the past week Sir John Maxwell has been for a little while the Dictator of Ireland—the only kind of ruler the Irish really respect and obey.

To execute 14 rioters only after all they had caused to be done was distinctly erring on the side of mercy. And the Irish, being very practical-minded people, always regard, and have always regarded, mercy as a form of weakness. Cromwell they respect and hate. Buckshot Forster was hated only a little less, and was obeyed. Even Mr. Balfour—now so mild and pleasant—by proscribing certain districts, in the days of his youth and vigour, earned for himself the sobriquet "Bloody," and also earned some respect. But the men who love Ireland and treat her people kindly, like Drummond, and Mr. Birrell, merely get broken hearts for their pains. If Sir Horace Plunkett is appointed he will suffer the same. Ireland has always killed those who have loved her and tried to govern her—it is rather an interesting historical fact.

However, in Sir John Maxwell Ireland had a dictator who was straightening things out nicely, albeit far too gently, and was restoring order rapidly. Then what happened? More Unseen Hands got to work. Questions were asked in the House. The Irish vote might be lost if the Dictator of Ireland continued to do justice to the situation. All further executions were stopped by politicians. Then Mr. Asquith, as clever a play-actor as ever lived, announced in the House, with sobs in his voice, that he would go to Ireland and try to restore peace.

And what does it all mean? At best that he has gone vote-catching, to stop a real man from doing a real job, so that this precious Government may remain in power and so that the Cabinet may draw its salaries. At worst that he is stopping the King's Armed Forces from administering to the King's Armed Enemies, the friends and stipendiaries of Germany, the punishment they so richly deserve.

When one learns the inside history of that riot, of the wounded soldiers shot in their blue hospital suits, of dum-dum and explosive bullets, of jagged iron fired from duck-gun at close quarters, and of the mingled cruelty and treachery of the whole affair, one is consumed with surprise that the troops took any prisoners at all, and that any man taken with arms in his hands was given any trial whatever. No one but the stupidly kind Saxon English would ever have thought of taking prisoners and trying them.

Think of those poor lads of the Sherwood Foresters ambushed in Mount Street and machine-gunned on the open paved road without an atom of cover, and then talk about your miserable fourteen executions. The inadequacy of the retaliation must have the whole of Ireland laughing. And then Mr. Asquith goes over to stop the Dictator from dictating.

Unless, through some act of God, Mr. Asquith "fails to return"—to adopt G.H.Q.'s official term for a B.E. behind the German lines in France—one cannot see much chance for a dictator to run an Air Service. With Mr. Asquith and his proved and trusted colleagues in power, there is little chance of any man being given a free hand to organise, build, and strike hard for the British Empire without political interference or hindrance.

Therefore, whoever first takes on the job of Air Minister will be almost bound to do things all wrong for lack of opportunity to do them right. Probably at the end of six months he will be, metaphorically, stoned in the streets, and it will be necessary to raise a bigger agitation than that which has caused the internal upheaval which has already brought about more reform in the Flying Services in the last two months, or even the last month, than most of us hoped for in a year.

All honour to those officers who are now doing such excellent work. One only regrets that they also are debarred from having the free hands of dictators. It is a long way, unfortunately, from Director to Dictator, although the words look so much alike.

The First Air Minister, be he Lord Curzon or anyone else, has one's hearty sympathy. Probably it will be necessary, in the Empire's interest, to break him before he has been in office more than a few months. That is why one would hate to see a strong man like Lord Sydenham or Lord Curzon take on the job. They would be so much harder to break than some others to whom the job might be given.

There is this much to be said for the establishment of an Air Ministry. It is always much easier to break an individual Minister—so long as he is not Mr. Asquith, and seemingly made of india-rubber—than it is to break either a Naval or Military officer who makes a mess of his depart-

ment, or who backs the wrong horse to the detriment of his command. Therefore by all means let us welcome the advent of an Air Minister.

He may rest assured, whoever he may be, that he will be given every chance of doing the right thing, but unless he is strong enough to fight the rest of the Cabinet over what he knows to be right, and unless he is strong enough to appeal to public opinion, as Lord Montagu appealed by resigning from Lord Derby's Committee, he will have a most unpleasant time during his short period in office. But still, it will go down to posterity that, bad or good, or merely futile like most politicians, he was the *First Air Minister*, so that may console him.—C. G. G.

THE COMING RACE.

The writer has asked many young pilots or would-be pilots why they so wanted to join the Flying Corps; the answer is invariably vague, and in many cases, apparently, springs from the fascination felt by certain types of mind to play with a new toy. It had its parallel in the early days of motors, when every boy's ambition was to have a "motor bike" and every man's to own a car. There are also a number who see an excellent opportunity to get through cheaply what is usually an expensive course of tuition, but in few is there a realisation of the frame of mind, of the mass of new knowledge, and even new senses that must be acquired to become a real "airman" in every sense.

The pressing need of the country has resulted in many youths and young men getting into this whilom exclusive Service with the most appalling lack of any qualification or investigation whatever, with the result that they are the laughing stock of their brother officers and a covert gibe and cause of dissatisfaction to the men.

Primarily to blame for this is the tragic delusion that youth is essential to the prospective pilot. It has resulted in many boys fresh from school, mechanical apprentices, and much of the bombastic youth of the motor trade being commissioned, when the glamour still clinging around aviation could have been made to attract a steadier and better class of man altogether.

It is no longer an idle dream that before many years are past there will exist aerial navies. Aeroplanes grow larger, engines more powerful almost month by month. The armour-plated fighter is a practical reality, and comparatively but little time is needed for this to grow into a veritable armoured cruiser with guns and crew. Multiple engines, distributed control, larger carrying capacity, all are being feverishly studied and experimented with by every nation under the pressing needs of this war.

All this can tend but to one end, the elimination of boundaries, and this is more vital to England than to any other nation. It is hard to realise at first that our old rampart, the sea, is disappearing.

Our security has lain in the fact that we have always been a decade ahead both in numbers and construction in naval warfare. But this new arm removes this natural obstacle and reduces all nations to an equal and common start. We no longer hold an initial advantage, and in the future side by side in active competition with every other people we must work out and perfect our aerial army.

The present pilots of the R.F.C. are the pioneers of a vast force to come. Future generations will read of their deeds as we read of those of Drake, Cook, and Nelson. And as these glorious names still serve to-day as an incentive to ever higher effort, should we not see that men are chosen to-day on whose deeds will inevitably be founded the spirit upon which our future in the air will depend?

More is wanted of pilots than to be mere aerial taxi-drivers, more than mechanical-minded enthusiasts eager for a new toy, more than men seeking novelty of experience. Somewhat of the dreamer, much of the adventurer, a hard fatalism, above all a will to work in silence with that one determination predominant that as in the past we have held the mastery of the seas so in future we will hold the mastery of the air.

Long years of patient and perhaps drudging work may be necessary to attain this superiority. Many pilots overlook or are ignorant of the vast possibilities of the future. The problems are many, the known facts few in this new internationalisation of the air. A huge responsibility rests on those who are directing our aerial service. On the foundation they lay now will depend our future in the world. To be a good military pilot calls for the very best in a good man. The men are amongst us, let us see that we get them.—QUERO.

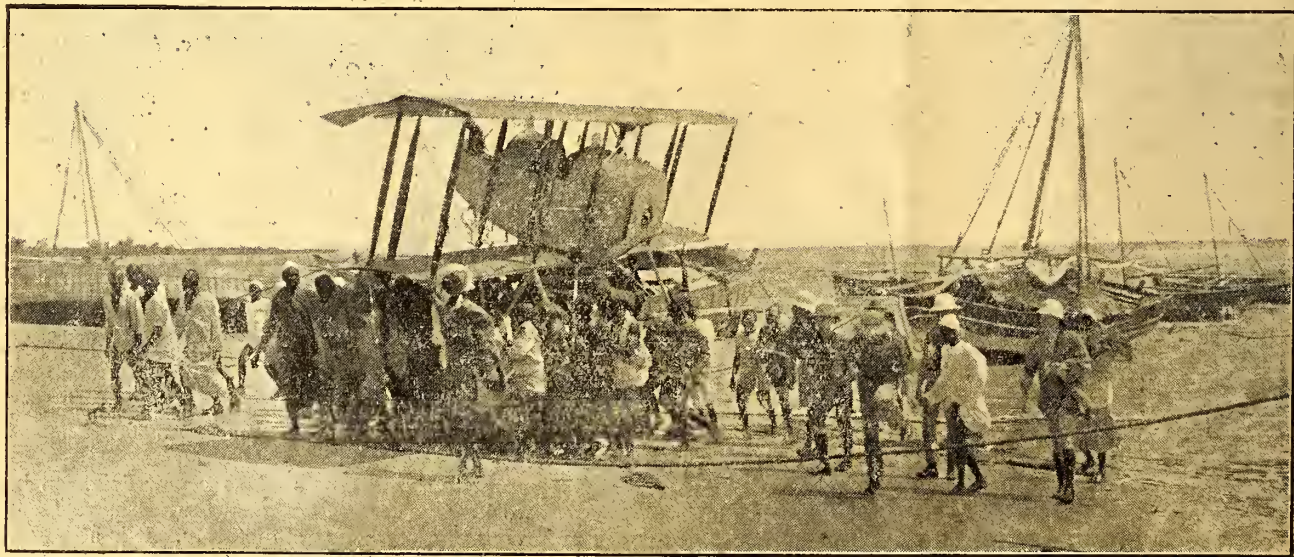
THE ROYAL AERO CLUB.

A special meeting of the Royal Aero Club Committee was held on Tuesday, April 18th, 1916, when there were present: Prof. A. K. Huntington (in the chair), Lieut.-Col. R. K. Bagnall-Wild, R.E., Lieut.-Col. W. D. Beatty, R.E., Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Col. Sir Capel Holden, K.C.B., F.R.S., Commander C. R. Samson, R.N., D.S.O., Mr. T. O. M. Sopwith, and the Assistant Secretary.

"DAILY MAIL" £10,000 PRIZE (CROSS-ATLANTIC FLIGHT).—In response to an inquiry from the Aero Club of America, it was decided that the competition for the "Daily Mail" £10,000 Prize (Cross-Atlantic Flight) could not be held during the war.

EXTENSION OF THE CLUB PREMISES.—A detailed scheme and estimates for the extension of the Club premises so as to provide, amongst other facilities, a room where members could obtain lunch and dinner, were considered.

It was unanimously decided to extend the premises.



A JOB O' WORK.—East African natives bringing ashore a Caudron, for the benefit of the "Konigsberg."

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THE AERONAUTICAL SOCIETY. OFFICIAL NOTICES.

THE WILBUR WRIGHT LECTURE, 1916.—The fourth Wilbur Wright memorial lecture will be delivered on Tuesday, June 6th next, at 3 p.m., in the Theatre of the Royal Society of Arts, John Street, Adelphi, W.C. The title is "The Life and Work of Wilbur Wright," and the lecturer, Mr. Griffith Brewer, A.F.Ae.S.

The Right Hon. the Lord Montagu of Beaulieu will preside. Tickets will shortly be available for distribution from the offices of the Society, 11, Adam Street, Strand, W.C., to which address applications should be made.

EDWARD BUSK STUDENTSHIP.—Applications will shortly be invited for the above Aeronautical Research Studentship. The approved scheme provides that the award and control of the studentship are to be in the hands of a committee, of whom three members are appointed biennially by the Aeronautical Society and three by King's College, Cambridge (Edward Busk's old college), with two of the trustees of the Fund. The remuneration of the student will be at a rate not exceeding £150 per annum for a period of one year, with an extension in special circumstances to two years. The student will be elected by the committee without examination, and shall not have completed his twenty-fifth year on October 1st preceding the election.

The student will be required to make report to the committee on his work from time to time, and at the close to present a full report to the Aeronautical Society, the University of Cambridge, and the Trustees, and he may be required to deliver a lecture or lectures embodying the substance of the report.

The intention of the founders of the studentship is that it should be primarily for the purpose of encouraging and helping young aeronautical engineers to make a good start on their career.

Inquiries should be addressed to the Secretary, Aeronautical Society, 11, Adam Street, Strand, W.C., from which address application forms will shortly be procurable.

ANNUAL GENERAL MEETING, 1916.—The annual general meeting of the Society will take place, as last year, immediately preceding the Wilbur Wright lecture.

Agenda: To receive and approve the report of the Council on the state of the Society and the balance-sheet of Aerial Science, Limited.

To discuss and determine such questions as may be proposed by the voters relating to the affairs of the Society, and to fill the vacancies on the Council for the ensuing year. Any voter desirous of proposing any subject for discussion at the annual general meeting shall give notice in writing to the secretary, which shall be received by him by noon on May 23rd, 1916.

The retiring members of Council are: Harris Booth, J. H. Ledebauer, Lieut. A. R. Low, R.N.V.R., Dr. T. E. Stanton, F.R.S., Squadron Commander F. K. McClean, Major-Gen. R. M. Ruck, C.B., R.E., Lieut.-Col. F. H. Sykes, C.M.G., and Dr. R. Mullineux Walmsley, who are eligible for re-election.

Nominations of candidates for election to the Council shall be signed by the voters proposing them (two voters and no more), and must be received by the secretary by noon on May 16th, 1916, with an intimation in writing by the voters nominated that they are willing to serve.

The Council will also ask for approval of their action in postponing, on account of the war, the date of the annual general meeting. By order of the Council,

(Signed) BERTRAM G. COOPER (Secretary).

THE R.F.C. JUDICIAL COMMITTEE.

The Committee appointed to inquire and report upon the administration and command of the Royal Flying Corps, with particular reference to the charges made both in Parliament and elsewhere against the officials and officers responsible for that administration and command, and to make any recommendations in relation thereto, met on May 10th, under the chairmanship of Mr. Justice Bailhache, to determine preliminary matters. The Committee decided to commence the taking of evidence concerning the charges on May 16th, at half-past ten o'clock. The sittings take place at the Grand Committee Rooms, House of Commons. The Committee have decided to admit the public, but counsel will not be heard. All communications concerning the inquiry should be addressed to the Secretary, Mr. D. Cotes Freedy, 2, Elm Court, Temple, E.C.

As this paper goes to press it is reported that the Judicial Committee has adjourned till Thursday, as no "prosecution" appeared to lay charges before it. One confesses to being a trifle surprised that the Committee's terms of reference should have laid it open to such a fiasco. The unsophisticated among us imagined that the Committee was appointed to call evidence concerning the charges already made by sundry members in the House of Commons and to prove or disprove those charges.

The present writer offered last week to place such knowledge as he possesses freely at the disposal of the Committee—subject, of course, to the fact that his sources of information cannot be disclosed—and that alone might provide material for considerable investigation.

It appears that no communication was made prior to this first meeting to Members of Parliament who were concerned with the Air Service agitation, so the fiasco of the first meeting was obviously due to official inaction.

The public will doubtless be divided in opinion as to whether those who made the charges consider it useless to submit technical evidence to a non-technical body, or whether they have no evidence.—C. G. G.

LORD MONTAGU AT EALING.

Lord Montagu, speaking at a meeting at Ealing on May 10th, organised by the Navy League, said we must not trust in accidents to wreck Zeppelins because all these flights now are largely matters of experiment. The Zeppelins are being built at a rate, probably, of one a fortnight, or 26 a year, and the Germans are not losing them at the same rate. Zeppelins are becoming more perfect. The one which was wrecked off the coast of Norway the other day, he was informed, had six engines—one more than any Zeppelin had hitherto been known to possess. They are also much longer, and they are carrying a greater supply of fuel, so that, although we were lucky in having three destroyed, we must not go away with the idea that Zeppelins are a thing of the past; they are only just beginning.

Lord Montagu said that General Pétain, the hero of Verdun, talked the other day of a French aerial force of 50,000 aeroplanes. In his wildest dreams he had never dared to put before even the mildest of Cabinet Ministers any figures of that sort, but he had suggested that we might eventually get into five figures if great energy is displayed and immediate action taken.

Hitherto there have been 30 raids over this country, and we have only succeeded by our gunfire, both by sea and land, in bringing down three airships. It cannot be pretended that any of us is satisfied with that result.

The proper place to stop the Zeppelin is not when it gets over London, but when it leaves Germany.

The Committee which had been appointed was merely, he understood, to investigate the charges which had been made concerning the administration of the Royal Flying Corps, but it would have nothing to do with policy.

The longer the war continued the more it would partake of the nature of aerial combat. At present neither of the great armies was entirely or properly equipped with aeroplanes. The position of an overwhelming superiority in the air would have very marked results, and unless we wished to be left behind in the struggle we must have a larger organisation for producing aircraft and training pilots, and, above all, we must try and combine them in one single control.

SOWING THE GOOD SEED.

Mr. W. Joynson-Hicks, M.P., addressed the members of the Ladies' Imperial Club on the subject of "The Air and the War" on Tuesday, May 16th. Viscountess Midleton presided.



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AIRCRAFT IN THE HOUSE.

ENEMY RAIDS (INSURANCE).

On May 8th **Mr. Tickler** asked the President of the Board of Trade if claims arising out of bombardment by enemy aircraft are being declined on the ground that the insured had also signed the coupon of a weekly paper, which paper refuses to accept liability on account of the claim not being made against it in the prescribed time; and seeing that the Government refuse to pay the damage insured for until the insured has exhausted the funds of the weekly paper, will he say what action he now proposes to take?

Mr. Pretyman: It is a special condition of the Government policy that the insured must exhaust his rights against any other subsisting insurance before claiming under the Government policy. A newspaper insurance coupon is a subsisting insurance, and I see no reason why the Government should relieve a newspaper of any liabilities which it may have legally incurred for its own purposes. The question of exhausting the funds of the newspaper does not, of course, arise.

Mr. Wing: Will the right hon. Gentleman assure us that the Department will take some steps to bring these newspapers to book when they make promises and do not perform them?

Mr. Pretyman: We have considered this matter carefully. The situation is a very difficult position. If my hon. Friend will give me particulars of any actual cases, we will look into them and see what can be done. It is very important to the insurer that where the newspaper is liable it should fulfil its liabilities; otherwise, the insurer is left stranded between the two parties.

Sir W. Byles: What newspaper is it?

PRIVATE AIRCRAFT FACTORIES.

Mr. Lynch asked the Under-Secretary for War whether, in view of the advisability of developing to the fullest extent the air-power of the nation, he will take advantage of the services that various private aircraft factories, as, for instance, the Whitehead Aircraft Factory, are in a position to render and stimulate their efforts by suitable orders?

The Under-Secretary of State for War (Mr. Tennant): Yes, Sir. [One only wishes that one had more confidence in Mr. Tennant's veracity.]

ZEPPELINS.

Mr. Hogge asked the Under-Secretary for War how many Zeppelins we possess?

The Parliamentary Secretary to the Admiralty (Dr. Macnamara): It is not considered in the public interest to give the information desired.

Mr. Hogge: I asked for this information in secret and got no reply.

Dr. Macnamara: That may be so, but I cannot add anything to my answer.

LORD CURZON'S RECOMMENDATIONS.

Mr. Hogge asked the Under-Secretary for War what are Lord Curzon's recommendations for the Air Service?

Mr. Tennant: This question is now under the consideration of the Government. It would be premature to make a statement.

AIR SERVICE (REORGANISATION).

On May 9th **Sir Frederick Cawley** asked the Prime Minister whether, in view of the need for the reorganisation of the Air Service, he can fix an early date for the discussion of the matter?

The Prime Minister: I am afraid I cannot yet fix a day for this discussion. The date must depend upon the progress of the Military Service Bill.

Sir A. Markham: Why have four lawyers been nominated out of six on this body?

The Prime Minister: I understand that, in view of the possibility of legal proceedings, it is very desirable that lawyers should be nominated.

Mr. Pemberton-Billing: Is it not advisable at least to invite some aeronautical experts to join?

The Prime Minister: Two members of the Committee are civil engineers of eminence.

Mr. Pemberton-Billing: Are those civil engineers acquainted in any degree with the requirements of a flying machine, or whether or not a flying machine designed by this country is fit to meet those of the enemy?

The Prime Minister: No engineer in this country excels Sir Charles Parsons in his knowledge of these things.

MESOPOTAMIA OPERATIONS.

On May 10th **Mr. Joynson-Hicks** asked the Under-Secretary of State for War whether his attention has been called to the German reports as to the shooting down by the Turks of old British aeroplanes endeavouring to get food into Kut; whether these aeroplanes are some which did reconnaissance work in the Sinai district but were so bad that they were transferred from there to Mesopotamia more than a month ago, being replaced by new machines in the Egyptian Army?

Mr. Tennant: I very much regret that I have not been able to get my answers down in time to give the answers to the House of Commons. I should like to inform the House that I have been engaged in drafting the answers to my questions since I

left the Local Government Board, where we had a conference on the Military Service Bill, until this moment, and it has been impossible for the War Office to get the answers typewritten in time. The consequence is that they have not yet come down. I have told them to send the answers down, as I drafted them in my own hand, at once, so that I hope they will be here immediately. It was impossible to get the work done in the time.

[If Mr. Tennant's answers were confined to the plain unsophisticated truth they would involve far less of this work which seems so overwhelming and evokes so much sympathy.]

Mr. Joynson-Hicks: I am sure that the House sympathises with the right hon. Gentleman.

Mr. King: Arising out of this rather unusual position, is there no means by which at a later stage in the sitting we might have the answers in their proper form as usual?

Mr. Speaker: I think the best plan will be to go through the questions, and by the time we have got through them once, perhaps the answers may have come down.

After Question 81 had been answered—

Mr. Speaker: Perhaps we may make an exception upon this occasion and go back to Question 10, as I understand that the right hon. Gentleman the Under-Secretary of State for War has now got his answers.

Mr. Joynson-Hicks repeated the question.

Mr. Tennant: A recent Turkish communiqué stated that the dropping of flour into Kut by aeroplane was stopped by Turkish battleplanes shooting down the British machines. The General Officer commanding in Mesopotamia reports that between the 11th and 29th April the British aeroplanes of the Royal Flying Corps and Royal Naval Air Service dropped into Kut-el-Amara 16,800 lbs. of food, in addition to quantities of medical and other stores and mails. No aeroplanes already in use in Egypt or the Sinai district were sent to Mesopotamia, though some of the personnel were. During these operations there were numerous aerial combats, in one of which a British seaplane was driven down in the enemy's lines, the observer being killed and the pilot wounded. On another occasion the pilot of a British machine was wounded and his machine damaged, but he succeeded in landing safely behind the British lines. These were the only casualties suffered during the operation. The House will thus see that this is a characteristic German report.

Mr. Joynson-Hicks: Seeing that we have so many of these characteristic German reports, could the right hon. Gentleman, for the benefit of the entire nation, make occasionally some such satisfactory statement as he has just made? It would not have been made if the question had not been put down.

Mr. Tennant: I will give it my consideration.

[In the first place the report was Turkish, and Turkish communiqués are usually remarkably accurate. So are German official communiqués, as distinct from their Press reports—so Mr. Tennant's gibe is ill considered and unlikely to convince those who know the truth. Secondly, Mr. Tennant only refers to "Casualties." He does not give particulars of machines shot down behind our own lines, or able to reach our lines damaged and unfit for further use, but without damage to personnel. The Turks claim the capture of three aeroplanes at Kut, so those may have been shot down without causing casualties. One regrets that the manner of Mr. Tennant's replies should so often influence one to doubt his strict accuracy, but he has only himself to blame. Whatever the losses the Flying Services deserve great credit, for 17,000 lbs. or so of goods delivered means probably 170 successful journeys, with the obsolete or obsolescent types of aeroplanes available.—Ed.]

ARMoured-CAR DIVISION.

On May 11th **Commander Bellairs** asked the First Lord of the Admiralty whether officers and men who served in the Armoured Car Division, which was a part of the Royal Naval Air Service, and remained in that service after the division was disbanded, have been informed that seniority in the Air Service will only count from the date of the disbandment of the Armoured Car Division; and, if so, whether he can see his way to reconsider a decision which inflicts hardships on officers and men who have gone through arduous and dangerous service in Gallipoli and in France?

Dr. Macnamara: The suggestion in the question is not correct as regards officers, who do count their Armoured Car time. The men, however, were receiving such high rates of pay as drivers in the Armoured Car Division that there was no justification for giving them the same rate of pay in the Air Service proper. They were, therefore, given their choice of taking their discharge, going to the Army, or accepting such rates of pay in the Air Service as their qualifications entitled them to. It is, therefore, considered justifiable that these men should be considered as having made a fresh start and their seniority has been reckoned accordingly. This will not interfere with their prospects as they are only entered for the period of the War, and, in the circumstances of the case, seniority cannot play such a part in determining promotions as it must do in the permanent service.

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WARNING OF AIR RAIDS.

Mr. Annan Bryce asked the Secretary of State for the Home Department whether any and, if so, what arrangements exist for giving notice to local civil authorities of the approach of hostile aircraft?

Mr. Herbert Samuel: Yes, Sir, arrangements for distributing the necessary warnings to local civil authorities have been framed by the Field-Marshal Commanding-in-Chief, Home Forces, with the co-operation of the General Post Office and the police.

DOPE.

Mr. Bowerman asked the Secretary of State for the Home Department whether, in view of the recent fatalities which have occurred from the use of dope in aircraft works, he is aware that private makes of dope free from the poisonous spirit known as tetrachlorethane, and which are claimed to be entirely non-poisonous, are freely advertised and may presumably be obtained in considerable quantities; and whether the Home Department is prepared to recommend aircraft manufacturers to use these private makes of non-poisonous dope in the meanwhile?

The Under-Secretary of State for the Home Office (Mr. Brace): The Home Office has been in constant communication with the Departments concerned, and I understand that the arrangements which were set on foot some time ago for securing an adequate supply of a satisfactory dope free from tetrachlorethane are now approaching completion. It is hoped that the approved dope will shortly be manufactured in such quantities as to meet all requirements. The use of any other non-poisonous dope must depend on its suitability for aircraft purposes, and this is a matter for the War Office and Admiralty to decide.

AIR SERVICE COMMITTEE.

Mr. Pemberton-Billing asked the Prime Minister which members of the Judicial Committee on the Air Services are possessed of technical knowledge of aeronautics; and whether he will appoint to that Committee a sufficient number of men of aeronautical experience as will give public confidence in the findings of the Committee?

The Prime Minister: I must refer the hon. Member to the answer which I gave on Tuesday last, to which I have nothing to add.

Mr. Pemberton-Billing: Will the right hon. Gentleman state whether it is or is not his intention to have an aeronautical expert to deal with what is purely an aeronautical matter?

Mr. Pemberton-Billing asked when the House will have an opportunity of discussing the composition of the Judicial Committee set up to inquire into the Air Services?

The Prime Minister: No, Sir. I have no reason to think there is any general desire for such a discussion.

Mr. Pemberton-Billing: I wish to answer that, Sir.

Mr. Speaker: The hon. Member is not entitled to answer. He can only ask a question.

Mr. Pemberton-Billing asked why, in view of the fact that the criticisms and allegations of the Member for East Herts applied equally to the Royal Naval Air Service and the Royal Flying Corps, the terms of reference of the Judicial Committee are limited to the Royal Flying Corps, and will the Government so amend the terms of reference as to include the entire service?

The Prime Minister: I have read the speech of my right hon. Friend in which he promised to ask for a judicial inquiry. It is clear that this inquiry was to be made into the relation between the casualties in the Royal Flying Corps, and the character of the machines with which the Army pilots had been provided. The charges of murder were made against the Army, not the Navy. In any case, after consulting the First Lord of the Admiralty, I do not propose to extend the scope of the judicial investigation.

Mr. Pemberton-Billing: In view of the right hon. Gentleman's answer, I beg to give notice that I shall raise the whole question of the Committee of Inquiry on the first opportunity on the adjournment of the House.

ROYAL AIRCRAFT FACTORY (ENGINE DESIGN).

Mr. Pemberton-Billing asked the Under-Secretary of State for War whether the Royal Aircraft Factory have placed orders for 2,500 engines of their own design; whether, since first placing the orders, over 500 alterations in the drawings have been issued to the manufacturers; whether this design is based upon the successful Renault engine; whether the alterations or alleged improvements have resulted in a wholly inefficient engine; whether the order for 2,500 of these engines was placed before the engine had been proved efficient; whether this large order has deprived other constructors of necessary material; whether, owing to unskilful design, the engine is peculiarly liable to catch fire in the air and so to jeopardise the life of the pilot; whether the Aircraft Inspection Department of the Royal Flying Corps have protested against the employment of this engine; and, if not, whether he will call for a Report on the subject and, if that Report confirms the allegations in his question, will the War Office give orders to stop the construction?

Mr. Tennant: The Royal Aircraft Factory does not place orders for engines. There are three different types of engines which have been designed at the Royal Aircraft Factory, and orders for these have been placed by the Directorate of Military Aeronautics. One of these resembles the Renault engine. During the development of these engines many alterations were made in drawings and specifications. Material available for engines must of course be shared between different constructors. The remaining allegations in the question are devoid of foundation.

[The answer is, of course, technically correct in that the R.F.C. actually orders the engines, but on the advice of the R.A.F. As to the other allegations, while the figures may not be strictly accurate they are near enough for practical purposes, if not near enough to make a politician tell the truth.—Ed.]

SOUND COMMENT.

The whole Air Service question is better put in the following leading article from the "Times" of May 16th, than it has ever been put elsewhere. It is reproduced here so that it may go down in Aeronautical History as a concise statement of affairs in the middle of May, 1916:—

The danger, as usual, is a half-hearted compromise or another "white-washing" committee. An efficient Air Service is not to be formed by merely amalgamating the existing institutions under a high-sounding title. The fighting men of both are as good as any in the world. The organisation at home, as these fighting men know better than anyone else, is utterly inadequate.

In the matter of contracts, the Navy, as is natural, is probably far ahead of the Army, but neither has shown any real conception of the vast scale on which the air warfare of the future will be conducted. Machines are planned and ordered by fifties when they should be ordered by thousands. The larger policy is prevented by lack of foresight.

Design limps after the last captured enemy aeroplane when it should be thinking ahead of the next imaginable German invention.

The whole personnel needs overhauling. Ingenious inventors are set to manage great businesses.

There has been no serious attempt to apply to aircraft construction the elaborate division and "assembling" of parts which has gradually been introduced into the making of munitions. We are still at the same stage in aircraft as when Woolwich Arsenal, slightly expanded and "speeded up," was considered competent to supply the Army with shells.

If the recent Committee on the Royal Aircraft Factory knew its business, the Government is in possession by this time of some very sorry scandals—nearly all of them due to the fact that the men are in the wrong places, the soldiers fight against "business control," and there is the old ineradicable desire to hide unpleasant truths.

Meanwhile every manufacturer knows the appalling waste and chaos which has come of competition between two Government Departments in placing rival orders. That state of affairs must be stopped once for all, as it can only be stopped, by uniting the two interests concerned. And, since there is a special relation in aircraft construction between the designer and the pilot, it follows that there must be amalgamation also—at least up to the point of active service—of the men who are to fly the machines in war.

One disastrous effect of the fear of coming changes has been a spasm of competitive recruiting for both Services. It looks as though each were anxious to have as strong a hand as possible for bargaining.

Another equally dangerous sign, which we trust will be strongly checked, is the talk of showy air-raids for the gratification of the public. The public, we are sure, want neither the reclame of an ill-advised adventure nor an Air Service which is only strong on paper.

What they need, and mean to have, is the certainty that their money is wisely spent, that the organisation at the back is worthy of the men at the front, and that they have in course of creation a single great Air Service, building up its own traditions and capable of seizing and holding the supremacy of the skies.

THE INVASIONS OF ENGLAND.

* As the result of recent experience and special experiments the Field-Marshal Commanding-in-Chief, Home Forces, has issued, through the Railway Executive Committee, special instructions with regard to the working lights which are to be normally maintained on railways, as well as to the further reduction of these lights and the action to be taken by railway companies on the occasion of raids by hostile aircraft.

These instructions provide for the reduction of railway lights, other than signal lights, in districts threatened by hostile aircraft to the minimum necessary for the continuance of traffic, which in the national interest it is important to maintain under all conditions.

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NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," May 2nd, 1916.

WHITEHALL, April 28th.

The King has been pleased to give and grant unto the under-mentioned Naval officers His Majesty's Royal licence and authority to wear Decorations (as stated against their respective names) which have been conferred upon them by the President of the French Republic in recognition of valuable services rendered by them:—

INSIGNIA OF CHEVALIER OF THE LEGION OF HONOUR.—Lieut.-Commander Arthur Murray Longmore, R.N., until recently holding the appointment of Wing-Commander in the Royal Naval Air Service.

From the "London Gazette," May 9th, 1916.

ADMIRALTY, May 6th.

Flight Sub-Lt. M. A. Simpson to be Flight Lt. (April 1st); temp. Flight Sub-Lt. R. Y. Bush to be temp. Flight Lt. (April 1st); Eng. Lt. F. J. Baker to be Eng. Lt.-Comdr. (April 28th).

Prob. Flight Sub-Lts. confirmed in rank:—C. J. Galpin (March 30th, 1915); H. A. Bower (May 12th, 1915); A. F. E. Warner (May 25th); J. A. Smith (Oct. 10th); J. D. Marvin (Oct. 11th).

Temp. Prob. Flight Sub-Lts. confirmed in rank:—N. W. G. Blackburn (May 17th); P. W. James (June 25th); S. G. Beare (July 22nd); T. F. Le Mesurier (July 23rd); C. W. Greig, A. F. Marlowe, A. A. Wallis (Aug. 7th); E. B. Thompson, C. W. Scott (Aug. 8th); L. G. Scott (Aug. 14th); W. H. S. Aplin (Aug. 21st); H. A. J. Wilson (Aug. 27th); B. S. Wemp (Sept. 1st); R. Grahame (Sept. 3rd); W. H. Hope (Sept. 7th); R. H. Horniman (Sept. 6th); R. E. Darnton (Sept. 17th); H. G. Hall (Sept. 18th); G. M. Morse (Sept. 20th); F. M. Fox (Sept. 22nd); M. R. Buckland (Oct. 1st); E. E. Deans (Oct. 2nd); A. B. Owens (Oct. 3rd); G. H. Simpson (Oct. 6th); J. C. Raiton (Oct. 9th); L. M. B. Weil (Oct. 11th); C. D. Newman (Oct. 15th); G. C. C. Kilburn (Oct. 17th); A. L. Thorne (Oct. 19th); P. S. Fisher (Oct. 27th); P. D. Robertson (Oct. 30th); C. E. Rich, H. V. Terry, F. A. Best, G. F. Ross (Oct. 31st); K. F. Saunders, J. K. Waugh (Nov. 3rd); E. G. O. Jackson, B. W. Hemsley, G. W. Biles, W. Hocking (Nov. 7th); T. J. Jones (Nov. 8th); G. G. MacLennan (Nov. 11th); G. B. Taylor (Nov. 14th); W. J. Sussan (Nov. 15th); E. J. Cuckney (Nov. 17th); A. W. C. Kidner (Nov. 22nd); J. D. Scott, C. B. Sproatt, R. F. Redpath (Dec. 1st); J. Gorman (Dec. 5th); G. S. Gray, M. G. Dover (Dec. 6th); T. H. Newton (Dec. 7th); W. H. Mackenzie (Dec. 11th); H. G. Travers (Dec. 14th); R. H. Collett, J. A. Glen (Dec. 16th); B. D. Hobbs (Dec. 27th); E. S. Boynton, F. S. Mills, K. M. Smith (Dec. 30th); J. E. Northrop (Jan. 14th).

WAR OFFICE, May 9th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Squadron Comdrs., and to be temp. Maj. whilst so empld.:—Sec. Lt. (temp. Capt.) R. A. Cooper, Hamps Yeo., T.F., from a Flight Comdr. (April 19th); Capt. R. Loraine, S.R., from a Flight Comdr. (April 24th); Qr. Mr. and Hon. Lt. (temp. Capt.) F. H. Kirby, V.C., from an Equipmt. Offr. (April 26th).

Flying Offs. (Observers).—Temp. Sec. Lt. C. C. Treatt, N. Lan. R. (Oct. 21st); Sec. Lt. L. J. Gayly, R.A., and to be sec'd. (Nov. 10th); Lt. F. V. Woodman, 32nd (Res.) Can. Inf. Bn.; Lt. P. E. M. Le Gallais, R. Suss. R., and to be sec'd.; Temp. Sec. Lt. W. Baillie, R. Highrs., and to be transf'd. to Gen. List; temp. Sec. Lt. J. G. Will, Leins. R.; Sec. Lt. D. G. A. Allen, Durh. L.I., S.R., and to be sec'd. (April 1st); Temp. Lt. D. A. D. S. MacGregor, A.S.C., and to be transf'd. to Gen. List; Temp. Lt. H. Fowler, R.A., and to be transf'd. to Gen. List (April 19th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lts. (on prob.) are confirmed in their rank:—R. H. Jarvis, A. C. Hatfield.

From the "London Gazette" Supplement, May 10th, 1916.

WAR OFFICE, May 10th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Comdrs.—Lieut. E. W. Barrett, S.R., from a Flying Officer, and to be temp. Capt. whilst so empld. (March 29th). From Balloon Officers:—Capt. A. L. Kent-Lemon, York and Lanc. R.; Sec. Lt. J. S. D. Berrington, Lan. Fus., T.F., and to be temp. Capt. whilst so empld. (April 1st). From Flying Officers and to be temp. Capt. whilst so empld.:—Sec. Lt. A. J. Capel, Som. L.I. (April 16th); Lt. A. B. Adams, S.R. (April 20th); Lt. C. W. Snook (April 24th).

Equipment Officers.—From Asst. Equipment Officers, and to be temp. Capt. whilst so empld.:—Temp. Lieut. W. W. Tullis, Gen. List; Lieut. J. E. Storey, S.R.; Sec. Lieut. (temp. Lieut.) E. A. Jackson, 5th Yorks L.I., T.F.; Qr. Mr. and Hon. Lieut. G. Laing; Lieut. G. D. Hannay, S.R.; Lieut. J. T. Spittle, S.R. (April 26th). Sec. Lieuts., S.R.—J. P. Rowell, H. R. Lecomber, G. F. Underwood, S. S. Kennedy (April 26th).

Flying Officers.—Capt. D. B. Gray, 48th Pioneers, I.A.; temp. Sec. Lt. A. Cairnduff, R. Mun. Fus., and to be transf'd. to the Gen. List; temp. Lt. P. G. H. Fender, Gen. List; temp. Sec. Lt. P. A. Moodie, R. Fus., and to be transf'd. to the Gen. List; Sec. Lt. L. B. F. Morris, R. W. Surr. R., S.R., and to be sec'd.; temp. Sec. Lt. F. W. Honnet, Gen. List; Sec. Lt. P. Tremlett, S.R.; Sec. Lt. R. H. Jarvis, S.R.; temp. Sec. Lt. R. D. Oxlard, Gen. List (April 16th); Sec. Lt. G. H. C. Crooke-Rogers, Worc.

R., and to be sec'd. (April 18th); Sec. Lt. J. C. Griffiths, S.R. (April 19th); Lt. I. T. Lloyd, S. Wales Bord., and to be sec'd.; Sec. Lt. R. D. Sampson, Worc. R., S.R., and to be sec'd.; Sec. Lieut. F. F. Hutcheon, S.R.; Sec. Lieut. J. A. G. Gilroy, S.R.; Lt. A. C. Hatfield, S.R. (April 20th); Lt. J. W. Langmuir, Motor Machine Gun Service, Can. Ex. Force; Sec. Lt. T. S. Sharpe, Glouc. R., S.R., and to be sec'd.; Sec. Lt. N. Brearley, L'pool R., S.R., and to be sec'd.; temp. Sec. Lt. G. H. Hackwill, Som. L.I., and to be transf'd. to the Gen. List (April 21st); Capt. G. W. Webb, R. Ir. Rif., S.R., and to be sec'd.; Lt. L. G. S. Payne, Suff. R., and to be sec'd.; Sec. Lt. J. K. Parker, R. Sc. Fus., and to be sec'd.; Sec. Lt. P. Arbon, S.R.; Sec. Lt. J. Manley, S.R. (April 22nd); temp. Sec. Lt. O. V. Thomas, R.W. Fus., and to be transf'd. to Gen. List; Sec. Lt. E. W. Edwards, R. W. Surr. R., S.R., and to be sec'd.; Sec. Lt. G. H. Lewis, North'n R., T.F.; Sec. Lt. J. B. Brophy, S.R. (April 23rd). From Flying Officers (Observers):—Lt. (temp. Capt.) C. C. Haynes, Devon R. (April 16th); Sec. Lt. R. L. Chidlaw-Roberts, Hamps. R. (April 21st).

Flying Officers (Observers).—Temp. Lieut. D. M. Faure, A.S.C., and to be transf'd. to Gen. List (April 23rd); temp. Sec. Lt. R. G. H. Adams, Midd'x R.; Sec. Lt. J. F. P. B. Quinlan, R.G.A., and to be sec'd. (April 25th).

Asst. Equipment Officer.—Sec. Lieut. W. R. Lewis, S.R. (March 6th) (substituted for notification in "Gazette" of May 8th); temp. Lt. J. L. Salway, Wilts R., and to be transf'd. to Gen. List (March 13th); Sec. Lt. (temp. Lt.) R. A. Law, Arg. and Suth'd Highrs., T.F. (March 14th); temp. Lt. D. Sinclair, Gen. List (April 3rd); Sec. Lt. M. O. Darby, S.R. (April 24th).

ROYAL REGIMENT OF ARTILLERY.—R.G.A.—Lt. F. D. Maclean to be temp. Capt. whilst comdg. an Anti-aircraft Gun Detachment (February 5th).

MEMORANDA.—To be temp. Sec. Lieuts. for duty with the R.F.C.:—Cdt. N. Goudie, from Lond. R., T.F. (April 22nd); Cdt. J. A. Kirker, from Dublin Univ. O.T.C.; Pte. L. E. Owen, from Inns of Court O.T.C.; Pte. W. H. Longton, from 1st Worc. Yeo., T.F.; Pte. L. F. Jones, from R. Fus.; Pte. E. P. Jay, from Lond. R., T.F.; Pte. C. M. Clement, from 30th Inf. Bn., Can. Ex. Force; Spr. E. H. Cambridge, from 2nd Fd. Co., Australian Engrs.; Rifleman A. G. Cardwell, from a Prov. Bn., T.F. (April 29th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—MIL. WING.—Sec. Lts. (on prob.) are confirmed in their rank:—L. F. Hutcheon, P. Tremlett, J. A. G. Gilroy, J. C. Griffiths, P. Arbon, J. Manley, M. O. Darby, A. F. Palmer.

To be Sec. Lts. (on prob.):—G. F. Golding (April 6th); S. G. Dowsett, G. Mackrell, R. S. Jameson, F. B. Baragar, N. Greenwell, F. D. H. Sams, E. B. P. Barrow, E. C. Pashley, L. F. Peaty, F. F. Woodyer, F. Stoner, E. S. T. Cole, W. W. G. Beatson, L. D. Russell (April 25th).

The Christian names of Lt. Charles Drury Fuller are as now described and not as in "Gazette" of March 5th, 1915.

REGULAR FORCES.—INFANTRY.—SERVICE BATTALIONS.—To be temp. Sec. Lt. (on prob.) (April 23rd):—

LINCOLN R.—First Class Air Mech. L. O. Sharp, from R.F.C.

* * *

From the "London Gazette" Supplement, May 11th, 1916.

WAR OFFICE, May 11th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Wing-Comdr.—Capt. (temp. Maj.) J. G. Hearson, D.S.O., R.E., from a Squadron Comdr., and to be temp. Lt.-Col. while so employed (May 6th).

Squadron Comdr.—Date of seny. of Maj. A. D. Carden, R.E., is May 20th, 1912, and not as in "Gazette" of December 8th.

Flight Comdrs.—Capt. A. V. Holt, R. Highrs., from a Flying Officer (April 23rd); Capt. R. L. S. Raffles, R. Welsh Fus., Spec. Res., from a Balloon Officer (April 27th).

Flying Officers.—Lt. G. W. Wentworth, Norf. R., from a Staff Lt. at War Office (April 19th, seny. August 26th); Sec. Lt. E. Duveen, S.R. (March 2nd).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR UNITS.—ROYAL FLYING CORPS.—The notification of the appt. of J. H. Banks as Sec. Lt., which appeared in "Gazette" of April 6th, 1916, is cancelled; Sec. Lt. A. Livingstone-Allan relinquishes commn. (April 30th). To be Sec. Lts. (on prob.):—C. T. L. Millington, A. Champion, F. Alexander (April 3rd); C. H. Whittington (April 10th); H. W. Mills (April 11th).

* * *

From the "London Gazette," May 12th, 1916.

WAR OFFICE, May 12th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Squadron Comdr.—Capt. A. V. Bettington, Spec. Res., from a Flight Comdr., and to be temp. Maj. whilst so employed (April 30th).

Flying Officers.—Sec. Lt. (temp. Lt.) G. W. Swanson, Hamps. R., T.F., from an Asst. Equipment Officer (April 22nd); Lt. O. T. Boyd, 5th Cav., Ind. Army; Sec. Lt. A. M. Thomas, Spec. Res. (April 25th). From Flying Officers (Observers):—

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Capt. A. V. Holt, R. Highrs.; Sec. Lt. M. Jacks, E. Lan. R., and to be sec'd. (April 22nd).

Asst. Equipmt. Officers.—Sec. Lt., Spec. Res., C. E. Robertson, B. J. Nicholson, F. Alexander (May 2nd).

MEMORANDA.—Lance-Corpl. J. H. Banks, from A.S.C., to be temp. Sec. Lt. on the Gen. List for duty with the R.F.C. (March 13th). To be temp. Sec. Lt. —Pte. S. H. Preston, from Inns of Court O.T.C., for duty with the R.F.C. (May 6th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR UNITS.—R.F.C.—MILITARY WING.—Sec. Lts. (on prob.) confirmed in their rank:—R. H. Cronyn, J. B. Brophy, C. E. Robertson, B. J. Nicholson, W. R. Lewis. To be Sec. Lts. (on prob.):—A. R. Thomas (April 17th); C. R. Young (April 22nd); J. M. Battling, F. C. Deane, S. W. Taylor, C. H. Biddlecombe, G. P. C. Willeby, R. H. Timmis, R. H. Norton-Dawson (May 6th).

* * *

From the "London Gazette" Supplement, May 13th, 1916.

WAR OFFICE, May 13th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Squadron Commander.—Capt. F. G. Small, Conn. Rang., from a Flight Comdr., and to be temp. Maj. whilst so employed (April 30th).

Flight Commanders.—Capt. D. Rainsford-Hannay, 53rd Sikhs, Ind. Army, from a Balloon Officer (April 20th); Lt. P. LeG. Gribble, Hamps. Yeo., T.F., from a Flying Officer, and to be temp. Capt. whilst so employed. (April 30th).

Flying Officers.—Temp. Sec. Lt. A. G. Brooke, Gen. List; Temp. Sec. Lt. S. F. Browning, Gen. List (April 25th); Sec. Lt. R. H. Cronyn, Spec. Res., Temp. Lt. C. F. Portal, R.E., Spec. Res., from a Flying Officer (Observer) (April 27th).

Asst. Equipment Officer.—Sec. Lt. G. F. Golding, Spec. Res. (May 4th).

MEMORANDUM.—Sec. Lt. H. Hemming, Worc. R., to be temp. Lt. whilst employed with the R.F.C. (April 19th).

Temp. Sec. Lts. to be temp. Lts. whilst employed with the R.F.C.: G. B. Ward, T. H. McDowell, A. J. M. Clarke, G. N. Teale, V. G. A. Bush, F. G. Wilson, H. L. Wallis, S. E. Parker, T. A. Oliver, G. G. Lever (on prob.), G. W. M. Green, N. A. Bolton, A. Duguid, R. Raymond-Barker, E. R. Tempest, F. H. Furness-Williams, A. C. Hagon, E. S. Moulton-Barrett, A. D. Pearce, P. G. Scott, J. R. Philpott, C. M. Gibson, R. H. Peck, G. H. Gordon, H. M. Whitehead, G. B. Hodgson, J. B. Tait, A. J. Insall, S. W. Price, J. L. M. de C. Hughes-Chamberlain, L. C. Powell, A. M. Miller, K. R. Binning, G. C. H. Dorman, W. H. Davies, W. K. Sutton, P. B. Hunter, H. N. Nowell (April 1st).

To be temp. Sec. Lts. for duty with the R.F.C.: Sgt. E. R. Mackey, from Motor Machine Gun Serv., Tpr. K. Capel, from 6th Light Horse R., Australian Imp. Force, Tpr. G. Campbell Body, from 6th Light Horse R., Australian Imp. Force (May 6th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—MIL. WING.—To be Sec. Lts. (on prob.): A. D. Spiers, C. L. de Beer (May 6th).

TERRITORIAL FORCE.—YEOMANRY.—OXFORD.—Sec. Lt. F. S. J. Silvertop is granted the temp. rank of Lt. whilst employed with R.F.C. (April 1st).

SCOTTISH HORSE.—Sec. Lt. F. D. Lord Doune is granted the temp. rank of Lieut. whilst employed with R.F.C. (April 1st).

SURREY.—Sec. Lt. W. Brass is granted the temp. rank of Lt. whilst employed with R.F.C. (April 1st).

R. WILTS.—Sec. Lt. M. T. Baines granted temp. rank of Lt. whilst employed with R.F.C. (April 1st).

ROYAL FIELD ARTILLERY.—LONDON BRIGADE.—Sec. Lt. F. L. Mond is granted temp. rank of Lt. whilst employed with R.F.C. (April 1st).

ROYAL ENGINEERS.—HAMPSHIRE (FORTRESS) ENGINEERS.—Sec. Lt. S. L. Dashwood is granted the temp. rank of Lt. whilst employed with R.F.C. (April 1st, 1916).

TYNE ELECTRICAL ENGINEERS.—Sec. Lt. T. Henderson is granted the temp. rank of Lieut. whilst employed with R.F.C. (April 1st, 1916).

INFANTRY.—N. STAFFORD REGT.—Sec. Lt. G. Mountford is granted the temp. rank of Lt. whilst employed with the R.F.C. (April 1st, 1916).

LONDON REGT.—Cecil Cartwright to be Sec. Lieut. (on prob.) (May 14th, 1916). Herbert Whitby to be Sec. Lt. (on prob.) (May 14th, 1916). Sec. Lt. W. R. Bruce-Clarke is granted the temp. rank of Lt. whilst employed with the R.F.C. (April 1st, 1916).

* * *

From the "London Gazette" Supplement, May 15th, 1916.

ADMIRALTY, May 11th.

The following awards have been approved in recognition of services rendered by Petty Officers and men of the Eastern Mediterranean Squadron between the time of landing in the Gallipoli Peninsula in April, 1915, and the evacuation in December, 1915-January, 1916:—

TO RECEIVE THE DISTINGUISHED SERVICE MEDAL.—Chf. P.O. Mech., R.N.A.S., Bernard John William Brady, O.N. 234186.

The following Petty Officers and men have been mentioned in dispatches by the Vice-Admiral Commanding the Eastern

Mediterranean Squadron for good services in action during the period above referred to:—

Chf. P.O., R.N.A.S., Herbert Bradford, O.N. M.204.

P.O., R.N.A.S., Cyril Brew, O.N. 13987.

Chf. P.O., R.N.A.S., Albert Herbert Cummings, O.N. F667.

P.O. Mech., R.N.A.S., Arthur Ernest Close, O.N. 234743.

Chf. P.O., R.N.A.S., Edmond Dessaussois, O.N. F.1663.

Chf. P.O., 2nd Grade, R.N.A.S., John Evason, O.N., 200966.

Chf. P.O., R.N.A.S., Hugh John Hughes, O.N. F.892.

P.O., R.N.A.S., Arthur Percy James, O.N. F.174.

P.O., R.N.A.S., Alexander Jack, O.N. F.677.

P.O., R.N.A.S., Frederick Kerchev, O.N. F.700.

Chf. P.O., R.N.A.S., George Lacey, O.N. 272252.

Chf. P.O., R.N.A.S., Hubert Poyntz Leigh, O.N. M.947.

Chf. P.O., R.N.A.S., Harry Nelson, O.N. F.8945.

Chf. P.O., R.N.A.S., Percy Randolph Pratt, O.N. 344680.

Chf. P.O., R.N.A.S., Edward John Prothero, O.N. F.676.

P.O. Mech., R.N.A.S., Albert Edwin Platford, O.N. R.M.A. 11363.

Chf. P.O., R.N.A.S., David Morris Rees, O.N. 344437.

Chf. P.O., R.N.A.S., Charles Snow, O.N. 347686.

Chf. P.O., R.N.A.S., John Sutherland, O.N. 272328.

[Considering the small number of the R.N.A.S. personnel engaged in Gallipoli the number mentioned in dispatches is gratifyingly high, though the actual awards to R.N.A.S. ratings seem disproportionately low.]

One gathers that C.P.O. Brady won his medal by an exceedingly gallant attempt to rescue the late Capt. Collet, D.S.O., from the burning B.E. which caused his death.—Ed.]

* * *

WAR OFFICE, May 15th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—MILITARY WING.—Flying Officers.—Sec. Lt. (temp. Lt.) E. F. W. Cobbold, Ches. R., T.F. (April 14th, 1915) (substituted for notification in "Gazette" of May 7th, 1915); temp. Sec. Lt. J. S. Barnes, Res. R. of R.H. Gds., and to be transf'd. to Gen. List, Sec. Lt. L. C. Boyd, Spec. Res., Sec. Lt. G. E. Hewson, Spec. Res. (April 25th); Lt. G. M. Churcher, R.A., temp. Sec. Lt. R. P. Willock, Oxf. and Bucks L.I., and to be transf'd. to Gen. List. Temp. Sec. Lt. W. F. L. Castle, Gen. List. Sec. Lts., Spec. Res., J. H. Ross, C. H. Cox, W. O. Phillips, W. J. M. Tomson, E. H. Johnston, Sec. Lt. D. H. MacIntyre, Arg. and Suth'd. Highrs., and to be sec'd. (April 30th).

From Flying Officers (Observers).—Temp. Sec. Lt. S. G. Ridley, Gen. List (April 25th); Temp. Sec. Lt. R. Chadwick, Gen. List (April 30th).

Flying Officer (Observer).—Temp. Lt. R. G. H. Adams, Mddx. R. (April 25th) (substituted for notification in "Gazette" of May 10th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—The follg. Sec. Lts. (on prob.) are confirmed in rank:—W. O. Phillips, C. H. Cox, W. J. M. Tomson, E. H. Johnston. To be Sec. Lts. (on prob.):—L. S. Newns (April 29th); F. A. Harper (May 16th).

[By some curious mistake, apparently in the official "Gazette," many papers placed the above under the strange heading "Royal Flying School, Military Wing."—Ed.]

* * *

FROM THE "COURT CIRCULAR."

WINDSOR CASTLE, May 10th.

The following Officer had the honour of being received by the King, when His Majesty invested him with the Insignia of Companion of the Order into which he has been admitted:—

THE DISTINGUISHED SERVICE ORDER.—Squadron-Commander Reginald Marix, R.N.

The King then conferred decorations as follows:—

THE MILITARY CROSS.—Capt. Herbert Sison, R.F.C., Capt. Gilbert Rickards, R.F.C., Capt. John Ramsay, R.F.C.

Sec. Lieut. Ernest Gilbert, the Essex Regt. and R.F.C.

* * *

Brigadier-General H. M. Trenchard, Aide-de-Camp to His Majesty, had the honour of being received by the King.

NAVAL

The following appointments were notified on May 10th:—

ROYAL NAVAL AIR SERVICE.—The following temp. commissions (R.N.V.R.) have been granted, with sey. of May 9th, and all appointed to "President," for R.N.A.S.: Lieuts.—E. H. Fitchew, N. Vaux, S. Hedley, and W. F. Vernon. Sub-Lieuts.—N. V. Wrigley (late Flt. Sub-Lieut.), J. G. Mallett, H. C. Willson, and V. F. Bartlett.

Messrs. W. S. Crabtree and H. C. Mills entered as temp. warrant officers, second grade, and appointed to the "President," for R.N.A.S., to date May 22nd.

* * *

The following appointments were notified on May 11th:—

ROYAL NAVAL AIR SERVICE.—The following have been entered as Proby. Flt. Sub-Lieuts. for temp. service, with seny. as stated, and appointed to "President," additional, for R.N.A.S.: W. L. Anderson. May 10th. J. R. Blunt. May 11th. J. K. Fryer-Smith, T. P. M. Alexander, A. R. Greenwell, K. H. Milward, W. G. Kendrick, C. B. Wincott, J. E. Scott, J. E. Ruthven, W. K. Rae, L. H. Rochford, E. G. Selons-Hodges, and R. V. Weeks (all May 15th).



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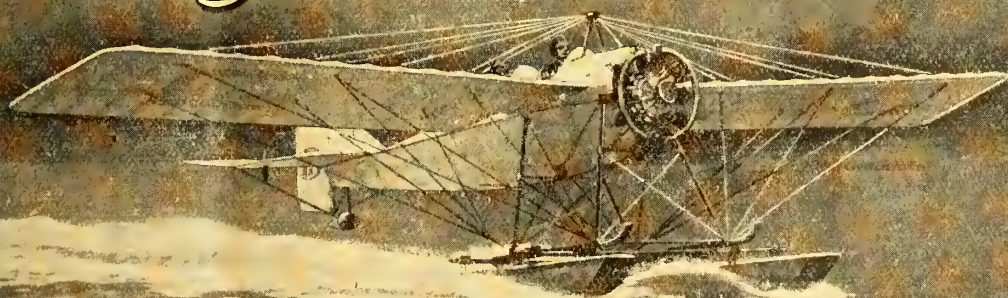
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The following appeared in the Casualty List issued on May 12th :—

SLIGHTLY WOUNDED, April 29th, Remained on Duty.—Sec. Lieut. Edward C. Lunt, R.M., R.M.A., Anti-Aircraft Brigade.

ACCIDENTALLY INJURED, May 8th.—Flight Lieut. Conway W. H. Pullford, R.N. (Lieut., R.N.).

MISSING, April 29th.—Flight Sub-Lieut. Cecil R. Terraneau, R.N.

* * *

The following appeared in the Casualty List on May 13th :—

PREVIOUSLY REPORTED AS MISSING ON DECEMBER 20TH, 1915, NOW UNOFFICIALLY REPORTED TO HAVE BEEN KILLED ON THAT DAY.—Flight Sub-Lieut. Frank Besson, R.N.

* * *

Flight Sub-Lieut. Frank Besson, R.N. (previously reported missing on December 20th, 1915, now unofficially reported to have been killed on that day), had seniority as sub-lieutenant of December 21st, 1914. He had been marked for promotion on January 1st of this year.

* * *

An extract from the "London Gazette" published this week notifies the King's permission to Lieut.-Commander A. M. Longmore, R.N., to wear the "Legion of Honour." It will be remembered that Commander Longmore was one of the first four officers permitted by the Admiralty to learn to fly, and that from the earliest days of Naval aviation he has done devoted and distinguished work. On the outbreak of war he commanded at Calshot, and thereafter took a Wing of the R.N.A.S. to Dunkirk at a period when bomb-dropping raids and patrols along the Belgian coast first became part of the regular work of the Navy. His Wing co-operated on most amicable terms with the French and Belgian Armies, and it was this work which has won for him not only the "Legion of Honour" now gazetted but the "Croix de Guerre," which has since been notified in French Army Orders, but has not yet been officially gazetted in this country.

* * *

The "Motor News" of Dublin, which is to be congratulated on appearing as usual on May 6th, despite acts of God and the King's enemies resulting in the complete destruction of its offices, tells the following excellent story of the adventures of a "Blimp" somewhere at sea :—

"Some time ago a lighthouse keeper on the eastern side of the Irish Sea noticed some buoys scurrying along the water surface; and concluding they were the result of a submarine caught in a fisherman's net, he wired the nearest aerial dépôt. The Commander sent out a balloon with a Marconi operator and a mechanic on board. They had not travelled far when they noticed that the drag was not clear, so the mechanic proceeded to descend and clear it, and, losing his hold, fell into the sea.

"The Marconi operator was left in sole occupation, and, being entirely ignorant as to the management of the balloon, sent out an S.O.S. signal. It was picked up by a yacht patrol, which started to the rescue, and having located the balloon flying low, steamed under it and one of the crew got hold of the drag. As he did so a puff of wind lifted the balloon, and the man at the end of the drag was lifted off his feet and had to let go, fortunately falling on the deck.

"The patrol yacht followed the balloon, and again getting under it the drag was caught and secured to the yacht's stern. The Marconi operator, who had had enough excitement for one day, slid down on board, and the balloon was then towed into port. Meanwhile the mechanic had been picked up by another patrol boat. Such is the story related by a sea captain and which a friend passed on to us. We cannot vouch for its correctness, but notwithstanding that fact it may no doubt interest our readers."

[Barring that the "mechanic" was probably an officer pilot the yarn is probably true in the main.—Ed.]

MILITARY

The Secretary of the War Office made the following announcement on May 9th :—

The General Officer Commanding in Egypt reports that two hostile aeroplanes attacked Port Said at 7.30 a.m. on May 7th, but were quickly driven off by our anti-aircraft guns.

Eight or nine bombs were dropped, wounding three of the civilian population, but causing no damage.

* * *

A communiqué issued by the Secretary of the War Office on May 10th regarding General Lake's report from Mesopotamia says :

On May 7th an aerial combat took place, one of our machines being engaged with a hostile monoplane. Our machine was forced to descend, owing to a perforated petrol tank, but succeeded in reaching our lines; both pilot and observer were unhurt.

* * *

A communiqué issued by the War Office on May 11th respecting General Smuts' operations in East Africa says :—

An aeroplane dispatched to reconnoitre the line of the Usambara Railway has failed to return.

* * *

In his dispatch dated January 17th, 1916, addressed to the Chief of General Staff, Indian Army Headquarters, describing the opera-

tions in Mesopotamia during October, November and December, 1915, which was issued for publication by the War Office on May 10th, General Sir John Nixon, K.C.B., says :—

The officers employed on these reconnaissances displayed the same intrepidity and devotion to duty that has been commented on in previous dispatches. Unfortunately during the actual period of the battle at Ctesiphon a series of accidents deprived the Royal Flying Corps of several officers and machines. Among those forced to descend within the enemy's lines was Major H. L. Reilly, a Flight Commander of exceptional ability, who has much distinguished service to his credit.

THE CASUALTY LIST.

Published on May 11th :—

KILLED.—Ryckman, Sec. Lieut. E. G., Royal Flying Corps. PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Garlick, Lieut. F. A., Royal Flying Corps.

Knox, Capt. W., Cameron Highlanders and Royal Flying Corps.

WOUNDED.—Creery, Sec. Lieut. C. J., Royal Flying Corps.

Mercer, Sec. Lieut. G. H. J., Duke of Cornwall's L.I., attd. Royal Flying Corps.

OFFICER PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONER OF WAR.—Lerwill, Lieut. O., Royal Flying Corps.

Published on May 12th :—

WOUNDED.—Van Goethem, Capt. H. E., Royal Flying Corps.

DIED OF WOUNDS.—R.F.C.—Atwell, 7194 2nd Cl. Air Mech. G. F. (Willesden Green, N.W.).

Published on May 13th :—

MISSING.—Capt. C. Bruno, R.F.C.

PRISONER.—Lieut. C. W. Hill, R.F.C.

* * *

Lieut. John R. Dennistoun, R.F.C., was killed on May 4th in an air fight, falling behind the enemy lines. He was educated at Trinity College School, Ontario, and Trinity College, Cambridge. He played in the university ice hockey team in 1913-14. With his father, Lieut.-Col. R. M. Dennistoun, K.C., and his brother, Capt. James A. Dennistoun, he came to England with the first Canadian contingent as an officer of the Fort Garry Horse of Winnipeg. He transferred to the R.F.C. in January, 1916, having served nearly a year with the 1st Canadian Division at the front. He was mentioned by Lord French for gallant and distinguished conduct in the field between April 22nd-25th, 1915, when the Canadians were at Ypres.

* * *

Lieut. F. A. Garlick, R.F.C. (previously reported missing, now reported killed), entered the Flying Corps in October, 1915, and was gazetted second lieutenant in January of this year, since which he had received a step in promotion.

* * *

Capt. W. Knox, Cameron Highlanders and Royal Flying Corps (previously reported missing, now reported killed), entered the Service in December, 1913, and had his captaincy in February, 1915.

* * *

A fatal flying accident occurred on May 14th at a place in the Eastern Counties, which the authorities desire to remain nameless. An aeroplane flown by Lieut. O. Hake, R.F.C., with a Mr. F. G. Sumner as passenger, hit a tree when landing and tore off a wing. The machine carried on over a narrow belt of trees and finally hit a wall and completely smashed itself. Both occupants were killed.

* * *

At the Polytechnic, Regent Street, a notice is displayed to the effect that all sections of the Royal Flying Corps are now full up, except for those between 41 to 45 years of age.

* * *

WHITE.—Killed in action on the 10th inst., Charles Douglas White, Lieut. King's Royal Rifle Corps, Military Cross, attached Royal Flying Corps, son of the late John White, Indian Civil Service, and the late Helen Elise White. Funeral, Kensal Green Cemetery, 15th inst., at twelve o'clock. (Indian and South American papers please copy.)

* * *

WILSON.—In loving memory of Denys Corbett Wilson, R.F.C., killed on duty in Flanders, May 10th, 1915

* * *

MEAD.—On April 22nd, at "Restmoor," Poulace Road, Ringwood, Hants, the wife of Captain J. Mead, Royal Flying Corps, of a daughter.

* * *

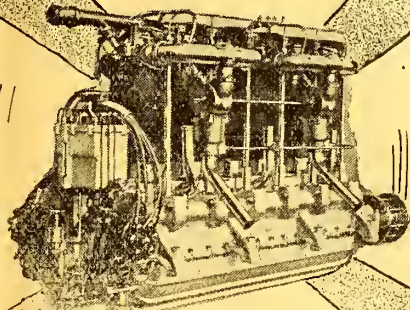
SALMOND.—On May 8th, at 25, Dorset Square, London, the wife of Brigadier-General J. M. Salmond, D.S.O., R.F.C.—a daughter.

SALMOND.—On May 8th, at 25, Dorset Square, London, Helen Amy, wife of Brigadier-General J. M. Salmond, R.F.C. [All who have served with General Salmond and who know the hard and valuable work he has done since the outbreak of war will sympathise with him sincerely in his great sorrow.]

* * *

The marriage arranged between Captain Alexander McR. Moffatt, 7th Argyll and Sutherland Highlanders and Royal Flying

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Corps, son of Alexander Moffatt, Advocate, Sheriff Substitute of Stirlingshire, Arnotdale, Falkirk, and Alice May, younger daughter of R. W. Herbert, Ashville, Sunderland, will shortly take place.

The marriage took place on May 8th, at the Oratory, Brompton, of Lieut. J. A. Hartcup, R.F.C., of Uplands, Suffolk, to Miss Violet Hammet, only daughter of the late Vice-Admiral J. Lacon Hammet, C.V.O., and of Mrs. Clement La Primaudaye, and grand-daughter of the late Sir H. Paston Bedingfield, Bart., of Oxburgh, Norfolk. The bride was given away by her uncle, Sir Henry Bedingfield, Bart., and was attended by Miss C. Jerningham as bridesmaid. Sir H. Jerningham, Bart., attended as best man.

The following extract from "Truth" of May 10th serves to show how very far from sense even "Truth" may be on occasion:—

"There seems reason to believe, in spite of certain official assurances, that promotion in the Royal Flying Corps is carried out in a rather happy-go-lucky way, and without sufficient regard for expert flying experience, which ought to be the chief qualification for advancement. In other corps constant complaints are made of Regulars being passed over by Temporaries, but in the Flying Corps the opposite principle seems to prevail, Regular Army officers getting all the promotion plums, while young men who have won distinction at the front as fliers, and even been decorated for their services, never get beyond the rank of Flight-Commander, some not as far.

"Quite recently Major R. E. T. Hogg, of the Indian Army, Major R. G. Cherry, R.A., Major J. A. Chamier, of the Indian Army, and Major T. C. R. Higgins, of the Lancaster Regiment, with some other Regular Army officers of field rank, were promoted squadron-commanders, I understand, over the heads of officers who joined the Flying Corps before they did, and have had overseas experience, which the officers named have not. If this is not the case I should be glad to be better informed.

[Major Cherry only attained field rank by this promotion, having been till then a Captain, R.A. He has, however, had considerable flying experience. Major Chamier is a Captain, I.A., and is in a similar position. One cannot write with personal knowledge of the other officers, but in these two cases one fails to find any ground whatever for complaint.—Ed.]

"The plea put forward for promoting Regular officers to the higher ranks in the Flying Corps is that they have been trained to habits of command and discipline, while many of the best fliers have had no previous military experience whatever. I doubt whether this argument counts for much when it comes to fighting in the air, where each machine acts independently on its own, and when once it has been sent up passes out of the control of anyone except its pilot. I may be wrong, but looking at the matter from a lay point of view, I should think that in air warfare expert knowledge is of more value than military experience."

[A more curiously misinformed argument one could not find. The mere fact that "each machine acts independently on its own" and "out of the control of anyone except its pilot" is the best possible proof that the rank of the pilot does not matter. A private or an N.C.O. might be as good as a General under the circumstances, and would probably be better. If he were it would be no argument for making him a Brigadier on the spot.

There are many men with a genius for flying and fighting who could not command a corporal, and to make them Flight Commanders with half a dozen officers and 30 or 40 men under them would be criminal. On the other hand, many men who cannot fly at all understand air work thoroughly and are, moreover, trained officers with experience in commanding officers and men.

It is always desirable that such officers should do a certain amount of flying over the enemy's lines, if only as passengers, so that they may have personal knowledge of what the officers under them have to endure, and so that they may know what machines are suitable for the work and what are not, but, so long as they have that knowledge, the only thing that really matters in a Squadron-Commander is that he shall be able to organise and command men. Which are precisely the qualities least often found in conjunction with the flying temperament.—Ed.]

FRANCE.

The communiqué of May 11th says:—

Aviation.—During the night from the 10th to the 11th four of our bombardment aeroplanes dropped 26 shells on the railway stations of Domvillers and Etain and on a park near Foameix, where a fire broke out.

The communiqué of May 13th says:—

During the night of May 12th-13th one of our squadrons, consisting of ten aeroplanes, dropped 43 shells on the stations of Nantillois and Brieuilles and on bivouacs in the regions of Montfaucon and Romagne (all in the Verdun region).

During the same night one of our aeroplanes dropped eleven shells on the airshed sheds of Metz-Frescaty.

A message from Toulon on May 15th says that a French airship, which left Paris, fell into the sea off Sardinia and the crew of six were drowned. A French warship which proceeded to the scene was given every assistance by the Italian authorities.

GERMANY.

The communiqué of May 12th says:—

A German aeroplane squadron lavishly bombed the railway station of Horodieja, on the Krashin-Minsk line.

The communiqué of May 13th says:—

A German battle airman shot down an enemy biplane over the Bourguignon Wood, south-west of Laon.

A British aeroplane was brought down on Thursday by our anti-aircraft fire south-east of Armentières.

It is reported from Denmark that a few days ago a fire broke out in a large aeroplane factory at Altona (west of Hamburg) through the explosion of the tank of an aeroplane which a mechanic was filling with petrol. Sixty-two other aeroplanes, some of which were completed and others in a half-finished state, were destroyed, together with the factory. The 400 workmen employed escaped without injury.

A Swedish engineer who has just returned to Stockholm after a four-months' stay at the Johannisthal aviation school reports the total destruction of a Zeppelin there. "During my visit," this informant said, "a Zeppelin fell down, the whole crew being killed. The incident was, however, never reported in the Press."

"Der Ulk," the comic supplement of the "Berliner Tageblatt," publishes the following amusing skit on the British official reports on the Zeppelin visits:—

"Yesterday once more four Zeppelins appeared over England. They threw 38 bombs, of which 42 did not explode. As usual, no damage was done. Only at Dover an inkstand was upset by the air draught and a bright red tablecloth was spoilt. A pike was also hit on the Suffolk coast at the very moment when it was going to attack a lady bather. In Devonshire the Mayor's new silk hat was soiled by a splash of mud. Nobody was wounded or killed. On the contrary, a sick soldier on leave recovered from his illness through excitement. Anyone who does not attach complete credence to this report will be conscripted without delay."

[And serve us right, too! The parody on the type of official report to which this paper has so often objected is really excellent. All the futility and flippancy is faithfully recorded.—Ed.]

RUSSIA.

The communiqué of May 11th says:—

In the region of the Middle Strypa, east of Podgaitsy, a German captive balloon broke from its moorings and fell behind our lines near Gussiatin.

ITALY.

The communiqué of May 11th says:—

An enemy aeroplane dropped bombs near the railway station of Ospedaletto (Sugana Valley), killing several horses. Our aeroplanes bombarded the railway station of San Pietro di Gorizia and the environs of Aisovizza.

The communiqué of May 13th says:—

Enemy aviators flew over the Lower Isonzo, but were driven off by ours, the latter dropping some bombs on enemy camps and troops at Novavas and Rangiano.

The Italian one-passenger height record held by Sub-Lieut. Guidi has just been beaten by Sergt. Baldoli on a two-engine Caudron at Turin with 5,600 metres on the 9th.

The city has been recently much disturbed by nocturnal bench tests of a huge motor.

Another biplane disaster is recorded due to roof scraping at Malpensa. Both pilot and passenger were killed by the bursting of the petrol tank, apparently caused by the same reasons as on the last occasion.

With reference to Swiss reports, current at Eastertime there and copied in other countries, that an Italian aeroplane had been brought down at Ludi (Epirus) by the Greeks, a Stefani dispatch, authorised and explicit, tells how the report got about. It runs: "On April 14th one of our machines, after a three hours' reconnaissance over the Semedi and Devoli valleys, beset by a strong wind and motor trouble was brought back by sheer skill and constancy on the part of pilot and observer to our own lines. During the night the high wind blew the machine over and slightly damaged it. So there were neither destruction, deaths, landing in Greece, nor firing by Greek troops."

Corresponding to a certain wise relaxation of Censorial severity in the English Press one hails considerable generosity in the matter of details in the Italian journals.

Decorations and promotions are now being harvested here as elsewhere. Major Ottavio Ricaldoni of the Technical side of the Air forces was quite recently given the Légion d'Honneur by the French Government. The compliment was suitably feted by some 200 officers of the Aero Corps at Turin.

Most of the big firms connected with "war in the air" are setting aside sums of money as prize-money for the benefit of pilots and other men who deserve specially well of their country during the present conflict. A Brescian firm awards a large sum to those crews who bring down an enemy with the firm's mitrailleuse. Messrs. F.I.A.T. and the Tyre merchants are also very generous. There being no intermediaries between the giver and the recipient the money gets home without deduction of "office" expenses.

* * *

Sausage balloons seem to be of vital importance and very extended use here, as on the other allied fronts, and the armoured car for coast defence is now quite to the fore. Collaborating on April 3rd at Ancona with fast-climbing fighting planes the A-Car Section appears to have been most useful.

* * *

So, too, are the Nieuport 80 and 100 Rhone biplanes at Udine and other places and the Aviaic (tractors) with 150 I.F. engines. These have a forward firing-gun on top plane and another for opening fire on pursuing craft.

Though Italy is using Nieuports, it is common knowledge and constantly referred to in print in Italy that the French are well supplied with Caproni (type?) bomb-planes.

In the monoplane Nieuports the enlistment of the Bowden patents for firing purposes (not the engine) has been most helpful.

* * *

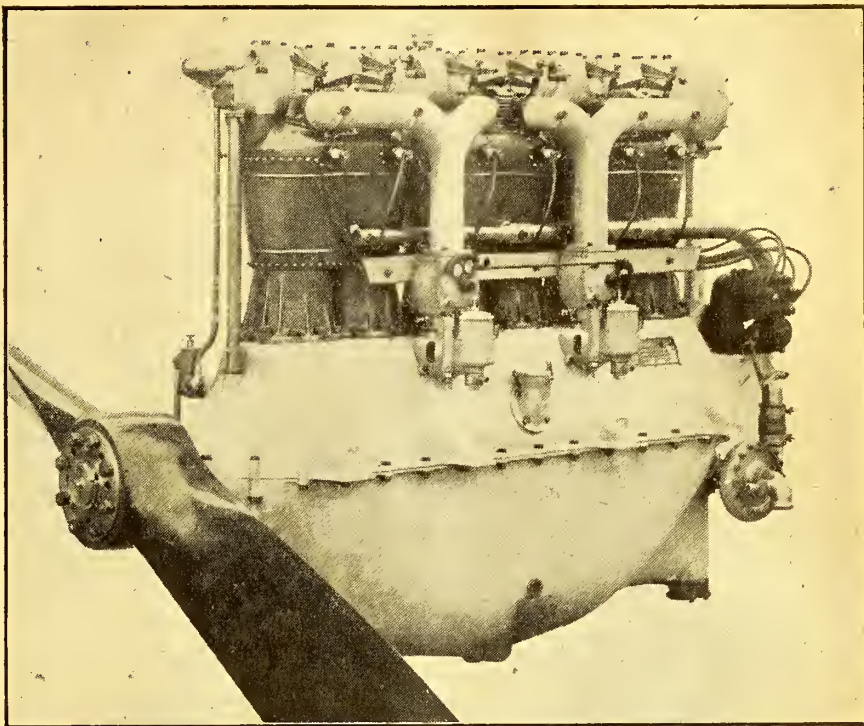
The toy fire-balloons, used very generally by the Austrians for finding out the state of the air, are always well loaded with "information" on the hopeless condition of the Allies and the excellence of the table in the prisoners of war palaces of the Central Powers.—T. S. H.

* * *

The Isotta-Fraschini aeromotor, which is being manufactured on a considerable scale at Milan, presents a very sound engineering job. It is made in two sizes, giving 150 and 200 h.p. respectively, the chief difference between the two types being the number of cylinders employed.

Briefly, the Isotta-Fraschini engine is a vertical, four-stroke motor with cylinders arranged in blocks of two, with a common water-jacket of sheet-metal riveted on.

The bore and stroke of the 6-cylinder 150 h.p. model is 130 by 180 m.m., and in the 8-cylinder 200 h.p. type 130 by 190 h.p. The brake h.p. developed at 1,300 revs. is 165 and 230 h.p. re-



Three-quarter view of the 150-h.p. Isotta-Fraschini, described below.

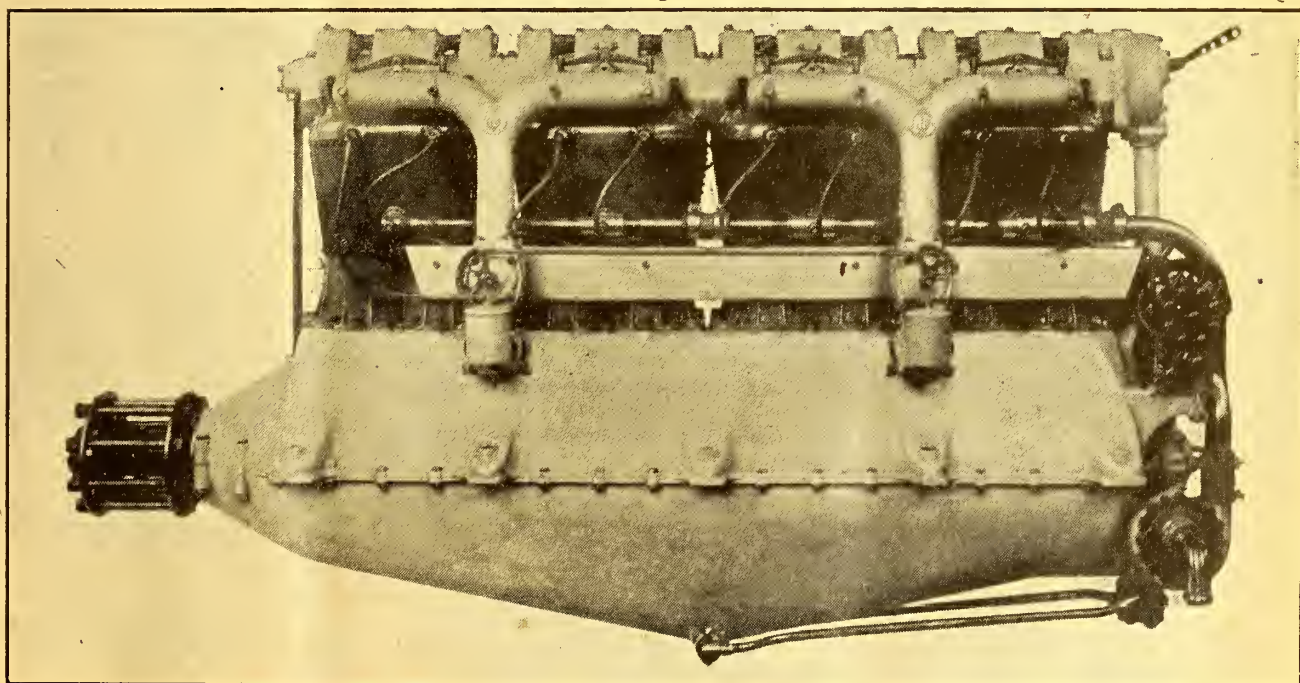
spectively. The weights of the two types are 260 and 360 kgs. (572 and 792 lbs.) without radiator, propeller, etc.

Overhead valves are fitted which can be removed without dismantling the cylinders. Ignition is by two independent magnetos each of which sparks in every cylinder, and two automatic carburetors are fitted, each feeding half the engine.

Force-feed lubrication is employed, oil being circulated from an exceptionally large sump.

The high repute of the Isotta-Fraschini car engines is a guarantee of the soundness of their design, construction, and material. The original Isottas were Italian-built Diétrichs, and bore the same double-headed cross of Lorraine as their crest. Fine as was the Diétrich the Isotta surpassed it in workmanship and material, and nothing quite so good in the way of small cars has ever been built as the baby Isotta.

The correct name and address of the firm is Il Fabbrica Automobili Isotta and Fraschini, Via Monte Rosa N. 79, Milan.—W. L. W.



The 8-cylinder 200-h.p. Isotta-Fraschini, described above.

GREECE.

Reuter's News Agency sends the following particulars of the Zeppelin brought down at Salonika, which are alleged to be official:—

"The vessel was No. Z.85, and was built at the latter end of 1915. Her length was 170 metres (560 ft.), and she had four engines, each of 100 h.p. Her speed was 95 kilometres (60 miles) an hour. The tanks held 2,500 litres of petrol. She was recently engaged in bombing Riga, Minsk, and Dvinsk, and attempted at the end of February and in the middle of March to approach Salonika, but was driven off near the frontier.

"The Zeppelin was hit three times on Friday, once in the reservoir (or tank), once in a ballonnet, and once near the stern."

[There seems to be some mistake about the engine-power, as 180-200-h.p. Maybach motors are standard, and 400 h.p. would not produce 60 m.p.h. Also, she was probably "L.Z.85," that is to say, the 85th Zeppelin built, according to shop numbers. "Z.85" would be the military number, and it is impossible that the German Army alone should own 85 airships of Zeppelin class.—Ed.]

* * *

It is reported from Salonika that on May 9th a German aeroplane dropped bombs on Janitza, an exclusively Greek town, and one not occupied by the Allies. A bomb fell near a detachment of Greek soldiers, but no one was hurt.

* * *

Apropos the bringing down of the Zeppelin in Greece, the Salonika correspondent of the "Morning Post" gives the following supplementary information:—"The pursuit after the crew required some considerable time, but as soon as the Germans found themselves held up they surrendered unconditionally. The newspapers draw attention to the absolutely loyal and effective co-operation between the French and their Allies, and regard this as one of the finest features of the successful achievement."

* * *

It is reported from Salonika that on May 14th French aeroplanes attacked Bulgar-German camp depots at Xanthi, dropping 400 bombs. All returned safely to Salonika.

TURKEY.

The communiqué of May 12th says:—

Mesopotamia Front.—A hostile aeroplane was hit by our guns and came to earth on fire behind the enemy's trenches.

* * *

Mr. Edmund Candler, of "The Times," makes the following remarks on aviation in an article on the siege of Kut, dated May 3rd, 1916:—

"During the last phase, while the relieving force were being held up on the narrow flooded front at Sanna-i-Yat, stores were dropped into Kut by aeroplane, chiefly salt, atta, flour, and tea. Previously aeroplanes had been employed for dropping light articles into the camp, such as rifle-cleaners, spare parts for wireless, siege nets for fishing, and at one time cigarettes and tobacco, but as it was impossible to supply all, General Townshend ruled out these luxuries as introducing a form of privilege. He himself shared every privation with his troops."

NORWAY.

It is reported that at 5 a.m. on May 14th a Zeppelin was seen in an apparently damaged condition off Bergen. The Zeppelin was flying very low, and was pursued by torpedo-boats. The chase disappeared into the mist, and it is not known what was the final result.

SWEDEN.

It is reported that 10 German seaplanes have been cruising over the Kattegat recently. Two machines descended outside Helsingborg and floated about until a Swedish torpedo-boat appeared, when they made off southward.

SWITZERLAND.

It is reported from Berne that in consequence of the repeated violations of Swiss territory by German aviators the Federal Council has recalled the Swiss Minister in Berlin, Dr. de Claparède, to Berne, in order to discuss with him the serious situation resulting from these occurrences.

* * *

It is reported that the German Government has sent confidentially to the Federal Council completely satisfactory communications on the question of the delimitation along the Swiss frontier of the neutral zone over which aviators are forbidden to fly.

The Federal Council held an extraordinary meeting on April 29th to take official cognisance of these communications, and now considers the affair as settled.

EGYPT.

Mr. W. T. Massey of the "Times" at Suez, in a cable dated April 24th says:

Yesterday and to-day a substantial force of Turks was badly mauled in the Quatia [Katia, see communiqué] district by infantry and the Australian Light Horse, while the Royal Flying Corps, which has done consistently admirable work throughout the campaign, finished the fight with a brilliant raid, scattering the remnant of the Turks across the desert. . . . The Turks' discom-

figure did not end here, for aeroplanes went after the retreating enemy, dropped bombs among them, and used machine-guns with good effect.

There were some brushes with the enemy near Quatia yesterday. A report was sent in that 400 Turks were bivouacking in the neighbourhood of Quatia last night, and this morning the Flying Corps made an attack. Starting in the darkness, the aeroplanes reached Quatia as the sun was rising, and dropped a large number of bombs, completely dispersing the enemy with bombs and machine-guns.

* * *

It is reported that on April 26th the Royal Flying Corps saw a hostile camp at Hod Bayud, a small oasis with palms in a depression of soft sand dunes half-dozen miles south of Abd. It was destroyed by the aircraft, and the scattered enemy retired on Abd, where they were bombed by the aviators.

Bombs have been dropped on Port Said by enemy aircraft. Flying at a great height on April 25th a Turkish aviator dropped four bombs. There were no casualties, and no damage was done.

U.S.A.

The War Department has issued the following statistics relating to the training course carried out at the North Island Air Station between January 1st, 1915, and February 29th, 1916.

Five Martin military tractors and two Curtiss flying boats were used, and their record compares favourably with European Service schools.

No. 31, Martin tractor: Number of flights 450; total time aloft 214 hours 15 minutes

No. 37, Martin tractor: Number of flights 534; total time aloft 239 hours 44 minutes.

No. 38, Martin tractor: Number of flights 824; total time aloft 425 hours 33 minutes.

No. 49, Curtiss flying boat: Number of flights 125; total time aloft 51 hours 28 minutes.

No. 50, Martin tractor: Number of flights 524; total time aloft 197 hours 30 minutes.

No. 51, Martin tractor: Number of flights 358; total time aloft 290 hours 41 minutes.

No. 34, Curtiss flying boat: Number of flights 584; total time aloft 264 hours 27 minutes.

During the first two months of 1916 these seven machines made 570 training flights with a duration of 257 hours 25 minutes. The distance covered in these flights was approximately 21,560 miles.

* * *

On March 29th the Navy Department at Washington received a dispatch from the Naval Aeronautical Station at Pensacola, Florida, announcing that Lieut. Richard C. Saufley, U.S.N., had in a seaplane flown to a height of 16,072 feet, a new record for seaplanes.

On December 3rd, 1915, Lieut. Saufley had established an altitude record of 11,975 feet—a very fine performance.

* * *

It is reported in the American aeronautical papers that a model "VX" Curtiss motor, rated at 160 h.p., has just completed a 100-hour test under the observation of official inspectors.

The motor was first given five consecutive non-stop runs of 10 hours each, after which it was disassembled (or "taken down") for inspection. On re-assembly, a 50-hour non-stop run was successfully conducted. The horse-power developed was always more than 160.

This is the same motor used by Mr. Victor Carlstrom when he flew from Toronto, Ontario, to New York City, last November.

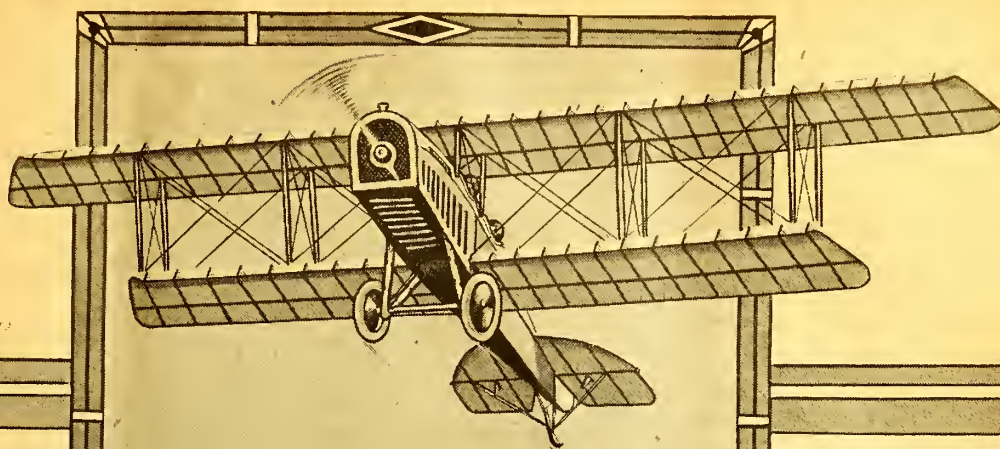
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A sporting effort is being made by certain graduates and undergraduates of Harvard University, Cambridge, Mass., to form a practical volunteer flying corps with a view to training pilots for the U.S. Army in case of war.

Subscriptions for the purchase of machines and equipment are being invited from all graduates of the University. Professor Royce is Honorary Commander, Franklin Roosevelt, Assist. Sec. U.S. Navy, and of Harvard, 1904, is an Honorary Member, Dr. Seabury W. Allen, of Boston, is Graduates' Treasurer.

The organisation will be modelled partly on French and partly on British lines. Orders will be given in unvarnished U.S.A., and one who is in close touch with the Corps suggests that refractory engines may be addressed in the dialect of South-East Texas, which is said to be a language particularly suited to the requirements of aviators. Rank is said to be allotted according to the imagination of the O.C.

One notes that part of the H.F.C.'s creed is that it "denounces" double-control school machines as "essentially vicious," as undermining "self-confidence." This is pure nonsense. A man learns on a dual-control machine in a fraction of the time he would take with single control, for an instructor can take him up, give him control at 2,000 ft. or so, and let the machine flop about till the pupil gains control, and confidence with it. Otherwise, one small smash while alone may break a man's confidence as well as his machine. Dual control on really good machines is the only sound and quick way of teaching.

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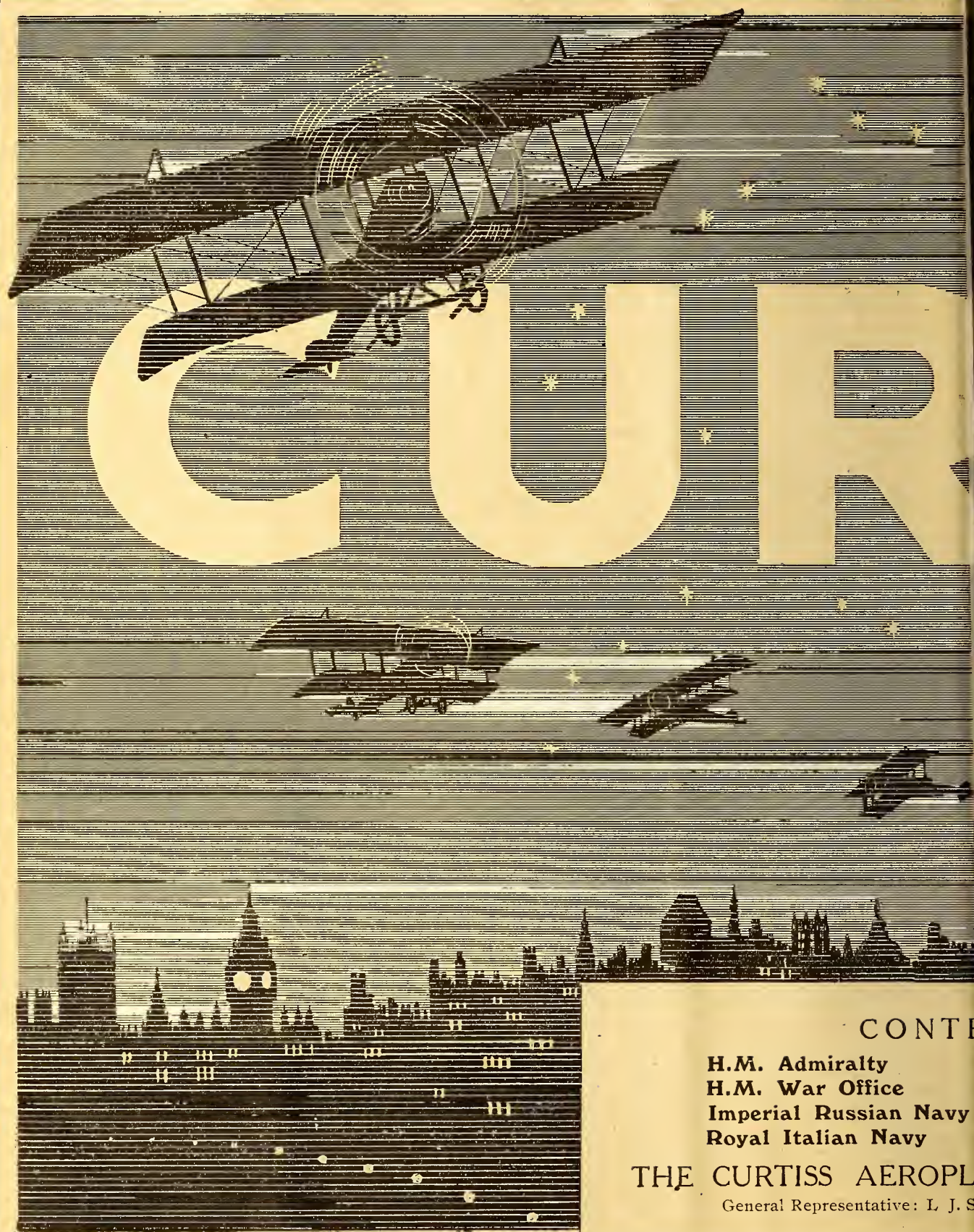
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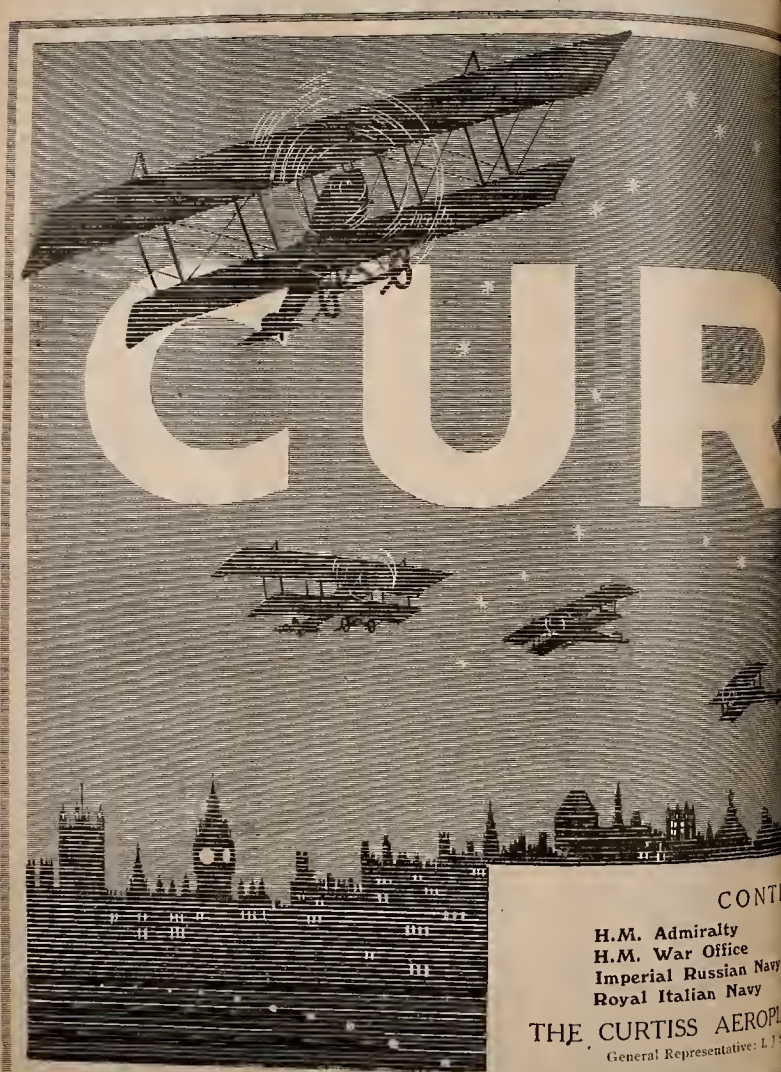


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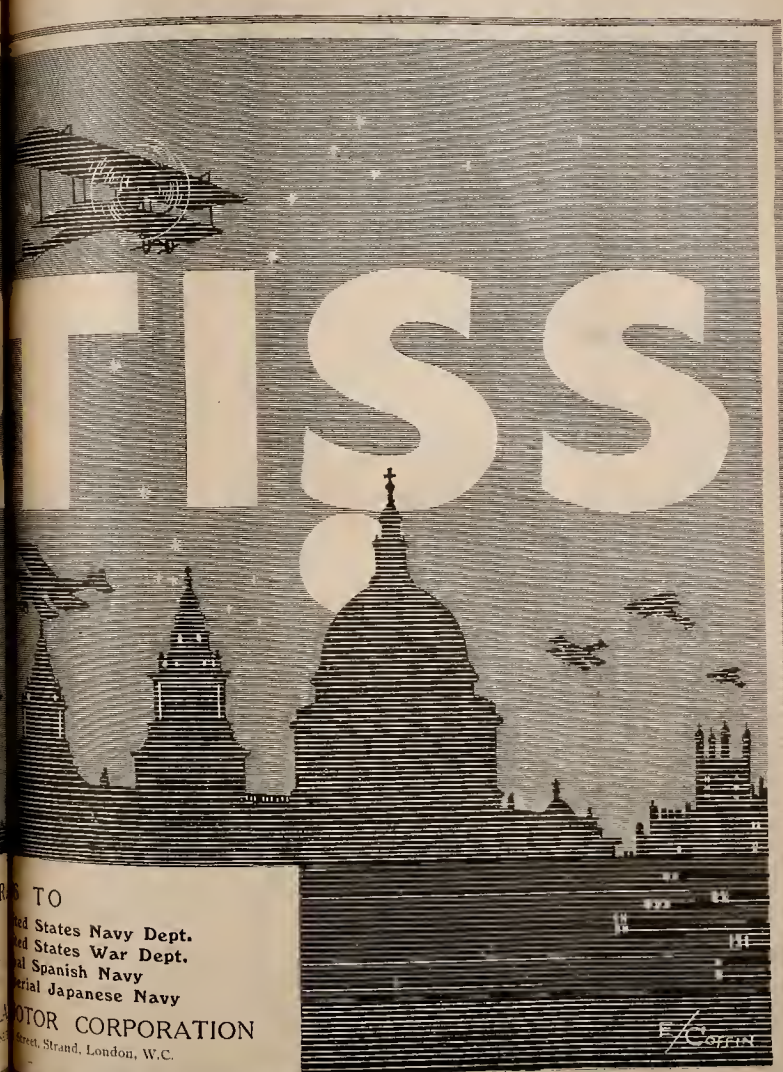


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AUSTRALIA.

Captain T. W. White, of the Australian Flying Corps, has sent the following letter to his friends, describing operations in Mesopotamia. The date of writing is uncertain.

"To-day a seaplane of the Royal Naval Air Service left Kut-el-Amara for here (Azizveh), with Major-General Kemball aboard. It was flown by Major Gordon. It left at 8.20 a.m., and as it had not arrived by 11 a.m., I had the job of going to find them. There are hostile camps of Arabs between here and Kut-el-Amara, and it was feared that they might have got into their hands. I took two 20 lb. bombs, two rifles, and 200 rounds of ammunition, and my pistol, as well as some provisions. . . .

"When at about 2,200 feet and about ten miles from Bagdad I saw them alongside an island in the Tigris. I came down to 200 feet to see if they were all right and to drop bombs if they were in trouble.

"The island was just a sand heap, and I decided to land as near as possible. There were three large camps of Marsh Arabs between me and where they were, and there were also some Arabs on the spot where I wanted to land. As I landed they cleared off. I had an idea that they were shooting at me from the villages, although I could not see the smoke. The ground was so short—about 25 yards—that I had even then to run over a small mound and across a channel on ploughed ground, but I flapped my ailerons vigorously, which pulled me up somewhat.

"As the others did not come towards me I went to them. I saw several mounted Arabs leave the village, and circle round towards me, while there were others in different directions. It looked as though they were about to surround me, but taking the rifles and the pistol I made towards the river. One Arab rode to within 50 yards, but I went straight on.

"I found Gordon and the General. It was decided that I should take the General back to Azizveh, and send a guard to pick up Gordon. On looking over my machine I found that a bullet had gone through my propeller. The Arabs, as I thought, had been shooting at me when I was flying at only 100 feet from the earth. General Kemball is the chief of staff, and is the next man of importance to Sir John Nixon, A.D.C. to the King. The flight commander was pleased with the day's work. . . . I have done 1,500 miles since I came here, have also dropped a few dozen bombs, while the Turks have wasted about 100 shrapnel on me."

It was subsequently reported that Captain White and his observer were captured by the enemy in an attempt to cut the Bagdad-Constantinople telegraph line. They flew to the scene of operations, but were caught before they could get away again.

THE R.F.C. COMMITTEE.

The following letter has been received from an A.I.D. official:—

"Sir,—In THE AEROPLANE dated May 10th, 1916, there are a few remarks re 'The Judges of the Flying Services.' You say that 'No member of the Committee is known to have taken any interest in the Navy, Army, or Flying Services at any time, and the only connection between the Committee and aeronautics is, that many years ago Mr. Horace Short was concerned with the Hon. C. Parsons in steam turbine experiments, etc.'"

"These remarks, as far as they apply to Sir Charles Parsons, are misleading and incorrect—it is well known to many people that Sir Charles has taken a very keen interest in both the Navy and the Army, and, so far as the science of flight is concerned, he was the builder of a flying machine, which flew under the power of a unique motor of his own design, I think, over twenty years ago.

"Some account of this machine was given in 'Engineering' about 1909. As I am writing without reference to notes I am not quite sure of the dates. I think it is only just and fair to Sir Charles and to your readers that these facts be made known.

"As to Mr. Horace Short's association with the Hon. C. Parsons, I do not think that aeronautics were at that time a serious study with Mr. Short, although, I think, his brother was then making balloons at Battersea."

[One is glad to have this testimony to Sir Charles Parsons' early acquaintance with aviation, and it only makes it the more surprising that he should not have been concerned with the later development of aircraft. It appears, also, that Mr. Short was interested in flying machines long before he started making aeroplanes at Shellness in 1909.—C. G. G.]

OFFICIAL FRIVOLITY.

"Would you throw a brick at a Zeppelin?" the military representative at the Essex Appeal Court on April 28th asked a member of the British Socialist Party, who said that as a Socialist he objected to warfare.

"I can't answer a question like that," said the Socialist. "I can only say that I have given up my work because it interferes with my conscience, and I am prepared to suffer."

The Socialist explained that he was formerly engaged in an aeroplane factory, but he gave up the work because the aeroplanes were used for warfare. He added, in reply to further questions, that he would be shot before he would go into munition work; and finally he was ordered non-combatant service.

[It seems a pity now that conscience is an officially recognised function that the subject is treated so flippantly by those in whom a little brief authority is invested.—Ed.]

AIR CURRENTS.

Last week a Peterborough boy, Harry Perrin, aged 12, slipped into the river while watching an aeroplane, and was drowned.

A photograph of a Naval S.S. type airship (commonly known as a "Blimp") was circulated among the illustrated journals by the Press Bureau last week. It is described in the "Mirror" as "An Air Dreadnought in the Clouds." Considering that one can plainly see the aeroplane fuselage, complete with passenger and pilot, below, one marvels still more at the fatuousness of the daily Press.

In a lighting case at Sunderland it was stated that when a special constable went to the door a young lady remarked, "It's much too wet for Zeppelins to-night." A perfectly valid excuse, but one which Bumbledom never recognises.

An Order in Council issued in a Supplement to the "London Gazette" on May 10th contains the following paragraph:—

It is further provided that "any person, having found any bomb or projectile or any fragment thereof, or any article whatsoever which he believes or suspects to have been discharged, dropped, or lost from any aircraft or vessel of the enemy, neglects forthwith to communicate the fact to a military post or to a police constable in the neighbourhood, or on being so required neglects to send or deliver the same to the competent military authority or some person authorised by him for the purpose, he shall be guilty of an offence against these regulations."

[So please hand over that 200-lb. T.N.T. bomb you are at present using as a door-stop; also the false teeth suspected of having been dropped by an air-Hun who was laughing at your favourite A.-A. gun.—Ed.]

A new flying machine of weird and wonderful design emerged from a shed at Hendon a few days ago after having been kept most carefully under lock and key. It is described by one who saw it as something like an aluminium coffin, composed of "five hexagonal tunnels," one in the centre and four grouped around it. The two outer tunnels contained propellers, the one at the top held the pilot, and the one at the bottom an 8 h.p. motor cycle engine. The centre one is presumably to let.

It is mounted on a wooden chassis, and the theory apparently is that when the propellers get going the machine rises into the air, leaving the chassis behind. How it is to land has not yet been decided, and the problem is not urgent, for when its first public appearance was made last week in the presence of sundry Staff officers the propellers went round—but that was all that happened. The Staff officers then left.

At any rate, they had breath of fresh air.

The large aeroplanes now being constructed are full of new possibilities. One which has already achieved wonders in the way of taking up 'bus-loads of passengers provided a fresh shock for its pilot a few days ago. After he had been flying for a short time a trap-door in the floor of the cabin opened, and two unsuspected stowaways appeared! It is reported that a lady conductor will be carried in future, and tickets must be produced on request.

Mr. Osipenko essayed a flight at Hendon last Saturday, accompanied by a passenger, but a strong wind made him descend in a field some distance away. A number of friends hurried across from the aerodrome to render assistance, but were stopped on a footpath by an R.N.A.S. mechanic. He roughly informed them they were not allowed there, by Admiralty orders, and when they explained their errand he pointed to a notice-board in the field, which said that trespassers were not allowed, and added: "What did that fellow want to land here for at all? Couldn't he see the board up?"

Madame Sarah Bernhardt, recently interviewed on the war in general, said: "I have never had luck, by the way; wherever I went in England and Scotland, where I had a reception I will always be proud of, I always missed the Zeppelin raids. You know I do not mind strong emotions, but the nearest the Zeppelins came to me was when the hotel I had been stopping in was half-destroyed by bombs a few hours after I left."

Possibly the Zeppelin commander decided to immolate the hotel in Madame's honour!

A curious report has recently come to hand, via the Canadian "Brandon Weekly Sun." The report is as follows:—

"Geneva, February 7th.—Fire has virtually destroyed the Johannisthal aerodrome, just outside Berlin, according to private telegrams from Munich and Stuttgart, received at Basel to-day. Six or more new aeroplanes are reported to have been destroyed in the blaze, which is said to have been the work of spies. No lives were lost."

[Considering that there are about 300 sheds at Johannisthal, it is a little bit difficult to understand why only six machines were burned—if the report is true, and a burning aerodrome would be something like a prairie fire. One wonders whether it is Canadian imagination or Canadian credulity which is abnormal.—Ed.]

The German Aeroplane Engines—I.

BY ANGLO-DANE.

From similar results in other domains, as for example by the automobiles, could be foreseen even in the case of the aeroplanes, that the Germans should, having hitherto learned from foreign—most French works and models, on a certain stage, thanks to sufficient means and an admirable organisation, surpass their former teachers.

The vigorous progress of German aeroplanes, which started with the beginning of the year 1914, was founded on three main factors; first, on the successful "dove" and "arrow" types, received from Austria and created by Herr Etrich and the Lohner Co.—the experiments of which latter—developed independent of those undertaken in England by Mr. Dunne,—second, on the Nationalflugspende—the 7,000,000 mark (£400,000) voluntary gathered for the promotion of aviation,—and third on the Kaiser's aero-engine competition.

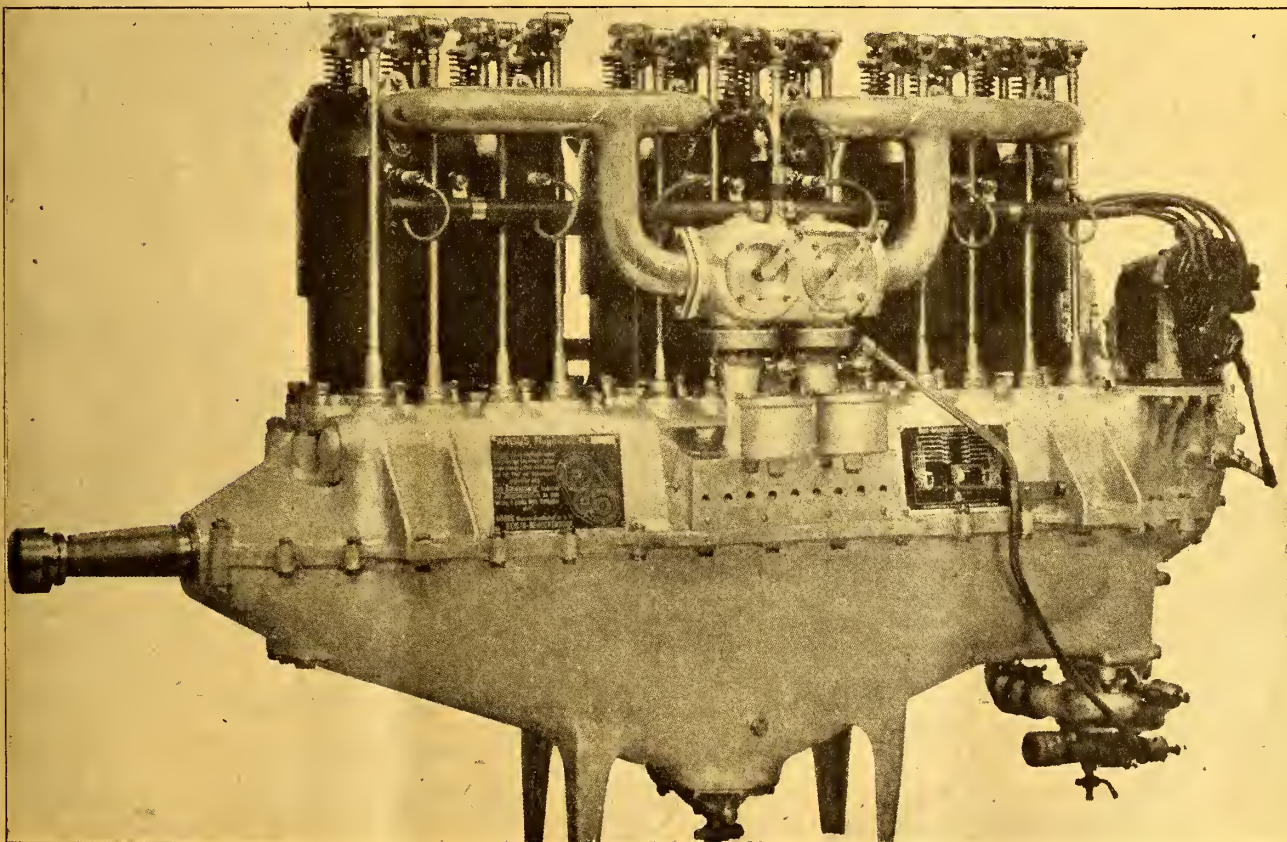
THE AEROPLANE, having always paid a special attention to the development of the German aviation, the report of its main features here suffices. The oldest German aircraft company was the Wright Co., one of the European branches of the American flight pioneers, the A.E.G. (Allgemeine Elektrizitäts Gesellschaft) and its sister company the N.A.G. (Neue Automobil Gesellschaft) taking part in the formation of this first German aero works. Die Flugmaschine Wright Gesellschaft held for some years a strong position against a trade of mostly French models copied aeroplanes, though the military authorities were in disfavour of the two-propeller propulsion, till the company was dissolved last year, having in reality been transformed in the Luftfahrzeug Co., which built the well-known Arrow biplane, piloted by Langer in successful duration record flights. The N.A.G. Co. built originally the Wright aero engine, turned out later a design of her own, lately only building a 130-h.p. model for seaplanes, till it stopped quite the manufacture of aero engines last year.

The means of the Nationalflugspende (not spent all yet) procured the pilots which trusted themselves to accomplish the combined night and day flights, such as Herren Stoeffler, Schlegel, Kaspar, Thelen, Oberlieutenant Kastner, Lieutenant Geyer and Stiefvater, and the various altitude and duration recordmen: Herren Oelerich, Linnekogel, Boehm, Landmann, Basser, Ingold, Langer, etc., besides turning out a number of new pupils, which were, as all receiving money from the national collection, bound for military duty in case of war, thus very welcome at present.

The Kaiser provoked, by fixing a prize of 50,000 marks (of his own means) on his 1912 anniversary, a competition for the promotion of the German aero-engine industry, the results of which were, as will be remembered, when announced on his 1913 anniversary: 100-h.p. Benz, the Kaiser prize for the best German aero engine; 75-85-h.p. Mercedes, the prize of the Reichskanzler, 30,000 marks; 95-h.p. N.A.G., the prize of the War Department, 25,000 marks; 60-70-h.p. Mercedes, the prize of the Reichsmarineamt, 10,000 marks; 100-h.p. Argus, the prize of the Home Secretary, big 10,000 marks.

The then comments of the announcement in the aero papers were most characteristic for the opinion of that time; they ran that it was astonishing that only one of the well-known aero engines, really used, had just succeeded in getting rewarded, referring to the Argus, which was then able of claiming for being in use on 90 per cent. of the German aeroplanes, whereas Mercedes was miscredited and being almost only flown by Herr Hellmuth Hirth, till he brought the latter engine into its own by his various victories in the Upper Rhine, the Berlin-Vienna and other flights.

An evident fact, often too pointed at, is that the two different ways, followed by the French and the Germans, to arrive finally at the same end: the mastery of the



The 100 h.p. Argus Engine. Note the Wiring Diagram and Timing Diagram engraved on plates fixed to the crank-case, as an example of German thoroughness.

air, mirror the peculiar different characters of the two nations: The French sporting aeroplanes with rotary engines, which need a consistent repartee with the rudder against the gusts, asking just for the individual qualities that distinguish the French in sport-branches as boxing, lawn tennis, fencing, riding, cycling and motoring, against the inherent stable German military aeroplanes with stationary engines, demanding cool, temperate and steady attendance. Which stands out even more distinct by the pilotage of airships, where all depends on the co-operation of several men in charge of the various levers. The airshipping is a collective sport, where the French are inferior, as they show to example in football playing, the main factor being here the discipline, the secret of the German power.

And it is interesting to observe how each part en-

mark, largely used in German aeroplanes, in the early days of aviation, being in competition with foreign—foremost the Gnome engines—cheap and unreliable, improving later the latter factor and raising in modern days both, the former little, the latter to a trusty degree. Stiefvater's 1,180 kilometres passenger long-distance flight (Freiburg-Königsberg, thereby winning 10,000 mark prize in the big Nationalflugspende competition); Schüler's 9 hours' non-stop flight, and various passenger duration records by Sikorsky on his giant biplane with four 100-h.p. Argus engines, standing among others to the credit of the engine.

The Argus aero-engine has developed from the ordinary automobile engine, having six water-cooled cylinders, schedule below showing the various measures and general information:—

Type	I.	II.	III.	IV.
Horse-power	115	130	145	190
Cylinder-measures	130 mm. X 130 mm.	130 mm. X 140 mm.	140 mm. X 140 mm.	155 mm. X 165 mm.
Weight, including magneto, water-pump, plugs, and carburettor:—				
With fittings above	210 kilos	210 kilos	245 kilos	310 kilos
Without	—	185 „	218 „	260 „
Number of revolutions for full power	1,350	1,350	1,350	1,300
Price { with cast-iron cylinders	9,500 marks	10,500 marks	13,000 marks	15,000 marks
{ with steel	—	11,500 „	14,500 „	16,500 „
Radiator (Windhoff system), weight empty	12.5 kilos	13.5 kilos	16 kilos	21 kilos
Water content	10 liters	11 liters	12 liters	16 liters
Price of radiator	450 marks	520 marks	590 marks	750 marks

deavoured to turn to account the advantage of the other, the Gnome engine (being manufactured by the Oberursel Maschinenfabrik by lizense) being used to a fair extent lately before the war started, on German aeroplanes, and the Argus and Mercédès engines, on the other hand, being officially invited by the French War Department to the next military aero engine competition in France.

No official figures existing as to the extension of use of the various modern German aero engines, they should turn out approximate at: Mercédès, 85 per cent.; Argus and Benz each 5 per cent.; Gnome-Oberursel, 3 per cent.; remaining engines 2 per cent. (Schwade Stahlherz German rotary, Rapp stationary, Grade two-cycle and others), the following lines shall deal in words and drawings with the modern German aero engines—in alphabetic order—information being based on latest sources ("Der Motor," "Der Motorwagen," recently).

THE ARGUS.

The Argus engine, manufactured by the Argus-Motoren-Gesellschaft, Berlin-Reinickendorf, was the first national

The cylinders are arranged in one row and either cast in blocks by two, together with the very short dimensioned water jackets, of a special gray iron sort, or turned from the full of chrome-nickel-steel, the latter construction doing away with troubles rising from breakage, leakage and twists, as all parts possess thus the same degree of endurance, allowing, too, the steel cylinders to have thinner walls, affording a saving in weight, a better cooling, and allowing the employment of higher compression, without self-ignition having to be feared. The cylinder-flanges are fastened with six nuts, the fixing points being reinforced by bear ribs on the cylinder walls.

The modern Argus aero engine has overhead inlet and exhaust valves to facilitate the cooling of the valve-seats; to get the strongest explosion the plugs are situated on the side of the compression chamber. The valves are operated by means of rockers and long tappet rods, worked from a cam-shaft, in the side of the crank-case, having four roller bearings. While the cam-shaft is propelled by cone-gears from the crank-shaft, the rods being

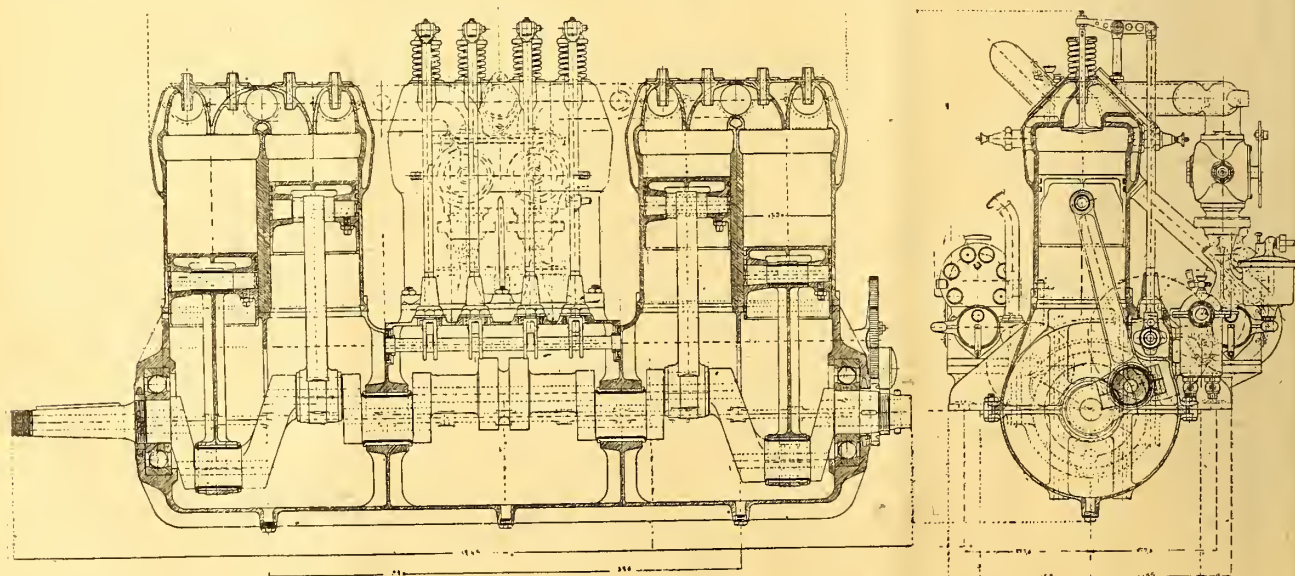


Diagram in part section of the 100 h.p. Argus engine.

MAY 17, 1916

The Aeroplane

781

Mr. ALEX. J. M. GRAY has forwarded to us a letter from an Officer in the Royal Naval Air Service, who writes:—

9/10/15

"The goggles arrived safely to-day, and I want to thank you very much indeed for them. I needed them more than anything else, and as a matter of fact I was about to get some myself, because one of ours had a nasty crash last week and would have been blinded had it not been for the Triplex Goggles."



N.B.—A pair of Triplex Goggles makes the most acceptable of all presents to members of the Flying Services or Mechanical Transport.

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Model "A"	7s. 6d.
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tubes with thin walls, the tappets roller ones, and the rockers being equipped with roller bearings.

The drilled gudgeon pins are made from high-grade chrome-nickel steel and fastened to their conical seats with counternuts, splints preventing them from turning. The piston rods are pressed in I-shape and fully worked, and the crank-shaft is turned from full chrome-nickel steel, and through drilling of the big ends lightened wherever possible.

The crank-shaft rotates in four bearings, the two at the ends being roller ones, those two in the middle sliding bearings, made by bronze with white metal linings, the lower part cast together with the crank-case, which is made in two halves and divided in three chambers by two vertical walls, thus insuring correct oiling independent of the position of the aeroplane and its engine. The six point suspension and the four support legs are evident.

The aluminium-cast inlet tube connects the three cylinder pairs between them, and with the two united G.A. automatic carburettors, in which design the Argus engine deviates from the Benz practice, as we shall learn later. The advantages are here that the failure of the one carburettor does not mean a stop of the running; indeed, interferes but little, and that the horizontal position of the inlet tube allows it to be comparative short, while the disadvantage is the two right-angled turns the gas is forced to carry out, causing much resistance by the high current of the gas.

The carburettors are surrounded by water jackets, in connection with the circulation cylinder-cooling water, resulting in a most regular carburation and in a protection against freezing in the winter months and by altitude flights.

The gas gets ignited from two independent working Bosch high-ignition magnetos, arranged at the end of the engine, to left and right, and operated by gears.

And, finally, forced lubrication is employed from a piston pump, enclosed in an aluminium casing, to be seen at the bottom illustration. Three tubes, each branching further into two, carry the oil from the pump to the upper part of the crank-case, from where it gets pressed direct to the various bearings, while the down-splashed oil gathers in the two crank-case chambers, where the ends of the crank-shaft dip into it and disperse the oil for further lubrication of the cylinders, gudgeon pins, etc.

(To be continued.)

BURBERRY EQUIPMENT.

For many years past the name of Burberry has been associated with high-class garments of all kinds, particularly those appealing to sportsmen at home and abroad. Since the outbreak of war the business of the firm has been mainly concerned with uniforms and general naval and military equipment.

Reference has been made on previous occasions in THE AEROPLANE to the special garments designed for service in the air, and a recent call at the handsome premises in Haymarket revealed the fact that many new ideas suggested by active service had been turned to account for the benefit of aviators.

The "Tielocken" Burberry is perhaps the most popular coat turned out by this firm. It is a long coat with a comfortable over-lapping front, which protects the wearer from wind and rain, and fastens quickly and neatly with a belt.

These coats are made in khaki or dark blue, and are both elegant and light. A new feature is the batiste lining which may be had if desired. This is the lightest waterproof material, consistent with strength, which the writer has ever seen.

It is a white, wax-proofed linen which feels almost like silk and is no heavier—the complete lining for an overcoat weighing only a few ounces—but it does not tear as oiled silk does. This material inserted in a light coat is guaranteed to keep the wearer as dry as the Liquor Control Board.

A new style of collar is now fitted to the "Tielocken" Burberry which buttons very comfortably over the throat and turns over. The coat also has an adjustable inside fastening round the waist, apparently for use before and after meals. It is worth while mentioning that there are no projecting buttons to catch in wires or other parts of the machine.

An instructor at a civilian flying school a week or two back had a very narrow escape from disaster, the cause being a trivial matter of clothing. He was attempting an exhibition flight in a very unfavourable wind, and when making his first circuit

with difficulty his engine gave out, at a time when he was a hundred feet or so above a pine forest. A fatal accident seemed inevitable, so much so, in fact, that a motor ambulance was hastily prepared, but the motor picked up and the pilot made a safe landing.

It transpired later that a sudden gust of wind caused the machine to rock violently, and the pilot, hastily putting his hand on to the side to steady himself, accidentally switched off his engine with the sleeve of an ordinary overcoat he was wearing. It was a striking example of the importance of being suitably attired for flying. The Burberry coats have sleeves which fasten closely round the wrists, avoiding dangers of this kind.

In addition to the coats made in gabardine, there are "Tielocken" leather coats for the R.N.A.S. and R.F.C., extremely well cut, and fitted with detachable fleece linings.

Civilian pupils will be interested in a gabardine flying suit, in one piece, wind-proof and comfortable, with a cap to match.

Among the many kinds of head-gear there is a black leather cap, lined with silk and trimmed with musquash, which looked excellent value for money at the low price of 35s.

There are many other items for aviators on show, including thick woollen stockings which fasten over the ordinary ornamental Burlington Arcade silk hose with a small strap, and come well up the thighs, and a varied assortment of warm vests, with or without sleeves, which make flying possible in the coldest summer weather, or at what might be called Hawkerian altitudes.—D. W. T.

THE AUSTIN MOTOR REPORT.

One or two famous motor-car firms now actively engaged in the aircraft industry appear to be unduly modest in regard to the valuable work they are doing for the nation. Everyone has heard by this time of the excellent Sunbeam aero-motors and the aircraft being manufactured at Wolverhampton, not only for the British Government, but for the various allied countries, but the important work which has for some time past been carried on by the Austin Motor Company, Ltd., at Northfield, near Birmingham, is not perhaps so well known.

The report of the directors presented at the annual meeting recently is a highly satisfactory one. After writing off £12,626 from preliminary expenses and placing £4,750 to reserve, a dividend of 7 per cent. was paid on the preference shares, 6 per cent. on the ordinary shares, and £5,445 carried forward.

Mr. Herbert Austin, the energetic chairman and managing director, in the course of his speech, said that the sales during the year amounted to nearly £900,000, and for the most part consisted of goods entirely different from those previously made by the company. This speaks well for the energy and resourcefulness of the management and staff, with the result that further large contracts have been placed, the order book at the present time reaching the remarkable total of nearly £2,000,000.

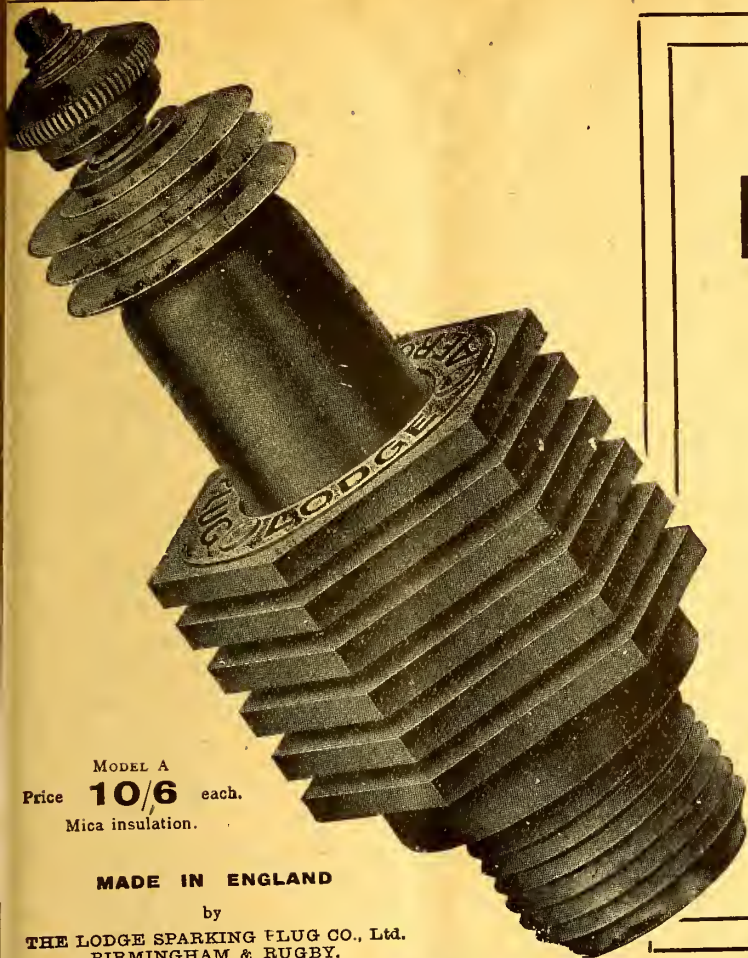
"When the war is finished," said Mr. Austin, "there will be no difficulty in returning quickly to our regular business, or taking up any lines that the circumstances may warrant. During the year several large shops have been built and equipped with plant for making shells, aeroplanes, aeroplane engines, and stampings in the most modern and effective manner, and the results attained have been the subject of very favourable comment. Reports from various quarters go to show that everything supplied by your company has in every case given thorough satisfaction, and upheld our reputation for sound and reliable manufacture."

One may assume that the aviation department has contributed in no small degree to the financial success of the year's working, and with so capable a designer of aircraft as Mr. J. D. North—formerly of the Grahame-White Company—controlling the destinies of that branch, there is every reason to expect even better results in the near future. Mr. Austin said little about the subject, but no doubt so enterprising a company will fully appreciate the immense possibilities of the aircraft industry, not merely during the present war, but afterwards, and will arrange to secure a permanent share of the business. Reputations are now being made which will ensure great prosperity in years to come, and it would be good to know that Austin aeroplanes and aero-motors were to take their place among the leading British productions of the future.—D. W. T.

FATAL ACCIDENT AT HENDON.

A distressing collision in the air occurred last Wednesday at Hendon. Mr. John Clifford Chapman, of Wilbraham Road, Fallowfield, Manchester, was making his second circuit on a Hall Caudron when his machine touched the wing-tips of a Beatty-Wright biplane, on which Mr. Courtenay, who had that day applied for the post of instructor at the Beatty School, was making a test flight. The two machines fell from a height of about 120 ft., and Mr. Chapman was killed. Mr. Courtenay was severely injured, and was removed at once to the Infirmary in Colindale Avenue, but at the time of going to press he is stated to be making satisfactory progress.

It appears that neither of the victims was strapped in, and that both fell out of their machines before striking the ground. The nacelle of the Caudron was comparatively little damaged. The moral is obvious.



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ESPRIT DE CORPS.

An interesting little dinner took place on Friday, at the Castle Hotel, Richmond, when Mr. Arthur Howitt entertained the original members of the "Whitecraft Club" and a few of the later members.

Those present, in addition to the host, included Mr. J. A. Whitehead (managing director of the Whitehead Aircraft Company and founder of Whitecraft), Mr. J. Ward (works manager), Messrs. W. H. Beveridge and —. Owen (visitors), Messrs. A. J. Macphail, A. Stebbing, W. J. Loosemore, A. E. Hagley, H. Crump, J. Kemp, J. Garner, E. Boyle, F. Wright, E. C. Baxer, W. Chandler, O. Allard, M. Byl, W. Cory, and others.

Mr. Ward expressed the appreciation of the gathering to Mr. Howitt, who, in reply, said that it gave him great satisfaction to be associated with such a body of men.

Mr. J. A. Whitehead, in acknowledging Mr. Howitt's remarks, said that they had been able to achieve great things, and a very considerable factor in enabling them to do so was the good feeling that prevailed. There was no finer body of men than his men. "Whitecraft" was a society to bind together the best workers—the best manual workers and the best brain workers—and the society was rapidly growing. They were out not only to beat the Germans now, but to lead the world in production after the war. Alluding to the success of his own company, Mr. Whitehead paid a great tribute to Mr. Macphail. "For what I have been able to achieve," he said, "I want to thank one man in particular, and that is my friend Mr. Macphail, who, as some of you may know, did something to help Mr. Cecil Rhodes to success." He was Secretary of the expedition to Rhodesia in 1894 with the Rt. Hon. Cecil Rhodes and Dr. (now Sir Starr) Jameson on the occasion of making the Report on the Mineral Resources of Rhodesia, and was London secretary of various companies operating with the British South Africa Company. Mr. Macphail became associated with him (Mr. Whitehead) in the very earliest days of this enterprise, and now, when they had achieved such a great measure of success, he desired to make that expression of his appreciation of what Mr. Macphail had done.

Mr. Macphail said that he deeply appreciated the remarks made by Mr. Whitehead. It was a curious coincidence that while with Mr. Whitehead at Richmond he had once more come in touch with Dr. Hatch, the eminent mining engineer, who also went out to South Africa with the expedition.

Mr. W. H. Beveridge, as a visitor and an engineer, said that the Whitehead Company astonished a good many people by their first achievement. Knowing what Mr. Whitehead had done, he was sure that he would accomplish the new work that he had taken on in quicker time than many thought possible.

Songs were given by Messrs. J. A. Whitehead, F. Wright, W. Chandler, W. Cory, M. Byl, —. Bastow, and Ralph Wood, Mr. Hagley proving a very efficient accompanist.

AN I.R. INVESTMENT.

The following from "Truth," of May 10th, is not without interest:—"Apparently the 'Investment Registry' no longer deems it worth while to keep up even an appearance of adherence to those principles of sound investment which it used to preach, if not practise. The latest circular offers for sale preference shares of the New Whitehead Aviation Construction Co., Limited, which are recommended as an extremely attractive investment. It seems that this company has lately been formed with a share capital of £130,000 (£100,000 in preference and the balance in ordinary shares) to take over and extend works at Richmond, Surrey, which are now employed in the manufacture of aeroplanes for the British Government. No details of the terms upon which the business was acquired from the old company are given, and other information that any hard-headed investor would consider essential is also conspicuous by its absence.

"The customers of the 'Investment Registry' are expected to be

content with the statement that the old company's profits to March 31st last were 'at a rate' more than sufficient to pay the fixed dividend of 7 per cent. upon the preference share capital of the present company—a dividend which may be supplemented, prospective purchasers are told, by the right to participation in the surplus profits after 7 per cent. has been paid on the ordinary shares.

"Prospective purchasers are also told that they can inspect the works, for all the world as if that would help them to judge the value of the shares. There is no reference to Treasury sanction for the raising of capital for this undertaking. On the strength of the bald particulars that it supplies the 'Investment Registry' actually asks 22s. for the 20s. shares.

"No doubt plenty of orders for the construction of aeroplanes are obtainable now, though a question in the House of Commons on Monday suggests a doubt whether this company is getting all that it wants. But what is the outlook for such a business when Peace brings the existing demand to an end? The Registry says the industry is certain to be developed enormously for peaceful objects. It is, however, absurd to suppose that there can be any developments for years to come sufficient to require a tithe of the present enormous output of aeroplanes for the war, and such shares as these seem to me extremely unattractive as a speculation, let alone as an investment."

[It certainly seems unfortunate that the Whitehead Co. should have mixed itself up with one of "Truth's" pet enemies, and one cannot, of course, say whether the firm is making big profits or not. One can say, however, that the firm's work is good, and that the employees work with a vigour and goodwill which one seldom sees in any British workshop.

Finally, when "Truth" talks of aeroplane business after Peace breaks out it is talking pure nonsense. It is only when Peace comes that we can begin seriously to build our great Air Fleet of the future, and that job, together with the commercial and sporting development of aircraft, will mean far bigger business than anything possible to-day.—Ed.]

TIMBER FROM BRITISH COLUMBIA.

The greatest forest region in the world, without exception, is the Pacific slope of North America. It extends along the continent north and south for 2,000 miles, and from the Pacific Ocean eastward to the Rocky Mountains. British Columbia occupies the central position.

This forest region contains over half the standing timber of North America. In its forests are the timber giants of the earth, oldest in years, largest in size, yielding the finest timber in the world, and famous everywhere. British Columbia, in fact, produces timber suitable for practically every use to which wood can be put.

Prominent among its products is Sitka Spruce, which is now being used in large quantities for aeroplane manufacture. Its long, straight grain and fibre, its fine texture, and the large, clear sizes obtainable, have shown it to be superior to any other wood for the aircraft industry.

Any information relating to timber may be obtained from the Chief Forester, Victoria, B.C., Canada, or samples may be seen at the handsome premises of the British Columbian Government in Lower Regent Street, S.W., where the Agent-General, Sir Richard McBride, is always ready to furnish any information about the products of the Maritime State.—D. W. T.

AN EAST-END CALIPH.

When Jacob Lazarus, of Whitechapel, was summoned at the Thames Police Court, not long ago, for an offence under the lighting order, he declared that if he could not have plenty of light in his fried fish shop he could not get a living.

"No one cares whether you get a living or not," said the magistrate. "If you choose to come to this country you must obey our laws. Pay £5, or go to prison for a month."



PLUGS

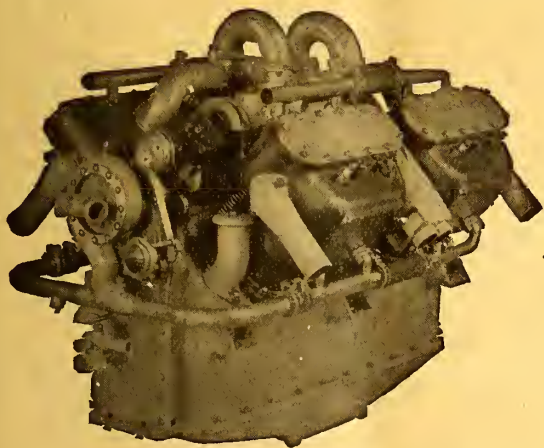
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A VACANCY.

The Mears Ear Phone Company, Limited, who are patentees and manufacturers of the "Aerophone," an ingenious instrument described some time ago in THE AEROPLANE, which makes conversation possible between a pilot and an observer, are at present unable to cope with the orders which are coming in. Like many other firms, they are suffering from the scarcity of labour, and there is an immediate opening for anyone who is able to make the small vulcanite and other parts which constitute the Aerophone. Any reader who has skill in the manufacture of models and other small work should communicate with the company at 193, Regent Street, W.

THE WEEK-END AT HENDON.

The weather was bad on Saturday, and the only machine out at Hendon was the Grahame-White three-seater. Mr. Osipenko made a flight, accompanied by a passenger, but had to make a forced landing in a field some distance away, fortunately without damage. Later on he returned to the aerodrome.

On Sunday the wind was again cold and blowing in gusts up to 35 miles an hour. Flying, however, went on all the afternoon. Many passengers were taken up in the three-seater by Messrs. Osipenko, Pashley, Hale, and Winter, and several in a G.-W. box-kite.

Mr. G. W. Beatty made two very good flights, one in a Beatty-Caudron and the other in a Wright. Several B.E.2cs. were out, and a Curtiss also appeared.

Late in the afternoon Mr. Sykes made two flights in a new high-powered Martinsyde scout, and although things did not look too pleasant at first he stuck to it manfully, and after several good circuits he made an excellent landing. As his previous experience has been mainly on a 35 h.p. Caudron the performance was all the more creditable.—D. W. T.

**SCHOOL REPORTS.
HENDON.****AT THE LONDON AND PROVINCIAL SCHOOL.**

Instructors: Messrs. W. T. Warren, M. G. Smiles, W. L. Hay, and W. T. Warren, jun.

Pupils alone: Messrs. Evernden, Birkbeck, Whittingham and Daly. rolling. Messrs. Dawson, Pulford, Moore, Morley Kent, straights.

Figures of eights or circs. alone: Messrs. Creaghan, Woods, Crawford and Egelstaff.

Certificates taken by Messrs. G. F. Creaghan, C. Crawford, and Lieut. F. T. Woods.

Machines in use: Three tractor biplanes.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors for the week: Messrs. Edouard Baumann, Felix Ruffy, Ami Baumann, Clarence Winchester, André Thomsen.

Pupils with instructor: Messrs. Carr, Dobson, Fraser, Wilson, Fanshawe, Baily, Straus, Maya, Edgar, Johnstone, Torres, Portella, De Balme, Williams, and Westlake.

Pupils doing straights or rolling alone: Messrs. Bailey, Whitaker, May, Williams, Winter, Fraser, Hoskyns.

Pupils doing figures of eight or circuits alone: C. W. May, Hoskyns.

Machines in use: 50 h.p. and 60 h.p. Ruffy-Baumann tractor biplanes.

AT THE HALL SCHOOL.

The following pupils received instruction during the week:—

With Mr. P. G. Allen: Messrs. Armitage, Gaskell, Collier, Robinson, Deane, Illingsworth, Dickson, Rayne, Rand, Le Grice, Russell, Graham Davis, Gudger.

With Mr. C. H. Bell: Messrs. Glegg, Halliday, Smith, Duncan, Mahoney, Hooker.

With Mr. C. M. Hill: Messrs. Taylor, Le Grice, Rochford, Rand, Pennell, Gaskell, Chapman.

With Mr. H. F. Stevens: Messrs. Gainsford, Dodds, Mahoney, Cosgrave.

Machines in use: Hall and Caudron Government-type tractors.

AT THE BEATTY SCHOOL.

Instructors for the week: Messrs. G. W. Beatty, G. Virgilio, H. Sykes, A. E. Mitchell, H. Fawcett.

Pupils out during week: Messrs. Schollaert, Jaquin, Tjaarda, Atkin, Gliksten, Smith, Cuthbert, Barrow, Mossop, Gaskin, Hoskins, Roberts, Knox, Brewerton, Phillips, Earl, Skeet, Dowding, Davy, Garlick, Kay, New, Drewery, Jones, Venables, Towson, McPherson, Mitchell.

Certificate was taken by Mr. H. W. Sellars on Wednesday.

Machines in use: Beatty-Wright dual-control and single seater propeller biplanes and Caudron dual-control and single-seater tractor biplanes.

BOURNEMOUTH.**AT THE BOURNEMOUTH SCHOOL OF FLYING.**

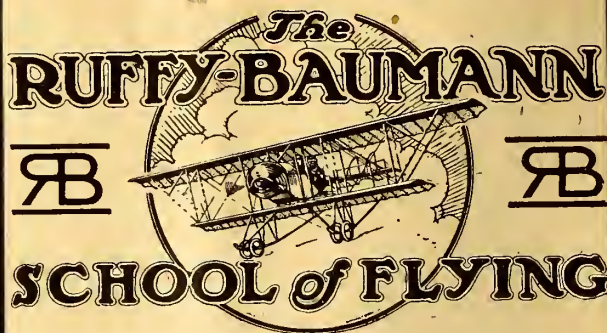
Instructors for the week: Messrs. S. Summerfield and E. Brynildsen.

Pupils rolling alone: Messrs. Kennedy, J. L. Barlow, Brandon, Gordinne, Pritt, Scaramanga, Daniel.

Pupils doing straights alone: Messrs. J. Wilson, O. Wilson, Morley, Morris, Adamson, Smith.

Pupil doing figures of eights and circuits alone: Mr. F. Simpson.

Machines in use: 35 h.p., 45 h.p., and 60 h.p. Caudron biplanes.



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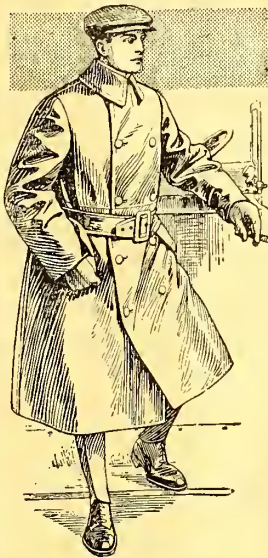
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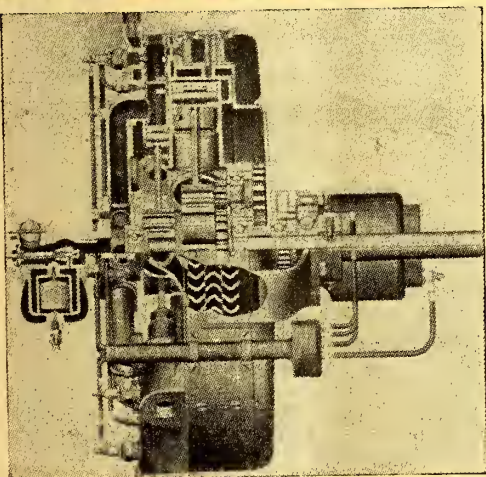
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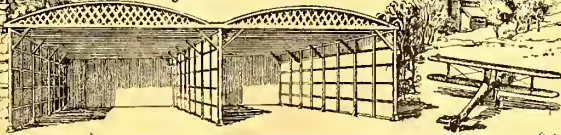
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A NEW PISTON METAL.

A great deal of attention has been devoted during the past eighteen months to the use of aluminium and aluminium alloy pistons in aeroplane engines, and, if certain inherent objections are removed, the reduced weight of such pistons is a considerable gain in efficiency.

The Aluminium Piston Company have carried out many experiments with aluminium pistons, and have eliminated the drawbacks which were present in many of the first efforts.

These experiments have resulted in the production of an alloy known as "Aerolite," which has a strength equal to cast iron, but the resulting piston shows a saving in weight from one-half to two-thirds. There is no tendency to warp as is often experienced with steel pistons, and the high heat conductivity of the metal overcomes any tendency to pre-ignition, and in many cases allows the compression of the engine to be raised, with a consequent gain of power.

It has been said that owing to the high expansion of aluminium alloys the working clearance that must be allowed is so excessive

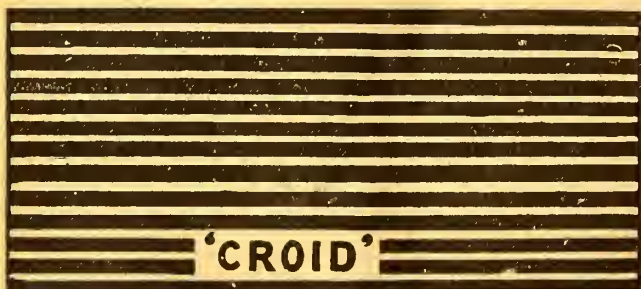
that the pistons tend to knock, but in the case of "Aerolite" against this must be set the cooler working temperature of the piston, which to a large extent counteracts the expansion, and if the pistons are carefully fitted in the first instance no trouble is likely to be experienced.

It would also appear that as the head of such a piston keeps cooler it is less likely to carbonise than is a cast-iron piston.

A good deal of the Aluminium Piston Company's earlier experience was with the D.F.P. car, which secured, and still holds, all the records of its class, and performed so conspicuously well in the International Tourists' Trophy Race in June, 1914.

Since the outbreak of war, however, experiments have been made with pistons for aeroplane engines, and the results are claimed to have been very successful through a range of cylinder diameters of from 60 mm. to 140 mm.

The Aluminium Piston Company, Hanover Court Garage, Hanover Street, W., are not only prepared to undertake castings, but to prepare designs and make patterns, and they are anxious to assist engine builders with any possible advice and information which may be required.



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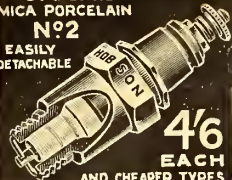
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Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

THE CLASSIC ANTOINETTE.

There is nothing like the Procrustean uniformity of a public-school education for teaching one the importance of being different; the more so that only about one in a hundred ever dares to be. When he does, the difference is called greatness, after it has become noticeable. Any old difference serves and is interesting, often useful to save an entire situation. This is why the consideration of the ten-year-old-classic Antoinette—that began as the French idea of a racing marine motor, and was developed as such through all the arduous of that work until its success qualified it for aviation use—becomes so well worth while, now that the state of aeroplane development, and the demand for larger motors of its type, brings it so much more into its appropriate period.

For in the Antoinette—which is otherwise nothing much more than a conventional V-type, except for its cooling system, another detail demanding special study—the feature is that the air supply is a fixed quantity, equal, yet independent, for each cylinder, while the petrol is fed direct into the cage of each inlet-valve and atomised upon it at the instant of its entry: the supply to all eight cylinders being regulated by varying the throw of the feed-pump plunger, the head of which is carried on an eccentric mounted in a slide-frame.

As to the reliability of this system, we have only to note the fact that none of the accidents that have occurred to the Antoinette monoplane—and there were plenty that had no fatal result—were ever traceable to motor-failure; that the staunchness and singular ability of this motor to respond to a special demand undoubtedly accounted for all that monoplane's most notable successes—as those who saw Hubert Latham's flight in a forty-mile gale at Blackpool will remember—and that a system identical in principle at least—the Hirsch-Low—served the 35-foot cruising-launch "Abiel Abbot Low" as the only motor-boat that ever crossed the Atlantic.

KEROSENE OR PETROL?

Specially may we note this case, as the fuel was not petrol, but ordinary lamp-kerosene, the use of which demands renewed study, as all the conditions seem to be forcing us that way. For a car, and still more for marine work, I admit, kerosene has so many objectionable qualities that hardly any economy can be said to make up for them. Not only does it smell vilely, but it creeps and sweats so incredibly throughout the construction that it assures certain destruction should the car or boat be exposed to flames.

On the other hand, unlike petrol, it will not take fire, except in a highly atomised condition which can only be created by special means, and lasts only for the fraction of a second. No mere spark or succession of sparks occurring round about the motor, no sudden flood from a perforated or leaky tank, can cause it to burst into flame. Thus for these reasons it becomes the safest and most useful of all hydro-carbon fuels for aeromotors, as its creeping propensity will not only hardly affect a well-doped plane, but will scarcely be inconvenient to the occupants of nacelle or fuselage.

SHALL IT BE KEROSENE?

There is also the consideration not only of its actual price, but the fact that that price will always be low as compared to petrol while any petroleum is left in the world, because the quantity

available is anything from twice to five times the proportion of petrol in any given bulk of crude petroleum. Being also the sole illuminant for eighty per cent. of the population of the civilised world, it is twenty times as much a stable standard article as petrol, which was formerly almost a waste by-product; and political as well as commercial reasons must keep it so, because one cannot get the essential lubricants out of petroleum until all the kerosene has been distilled off. And, taking all these immutable facts into consideration, the aeroplane fleets of to-morrow cannot afford to use petrol while kerosene is to be had in such quantities at such a price as 3d. a gallon ex-refinery, at which it can be payably produced from "dollar-fifty" oil.

But—there is only one way of using it as a carburant; the Antoinette way or any of twenty different mechanical ways of producing the same result: direct delivery at the ultimate point of final induction, for the finest atomisation for instant mixture with air and immediate combustion of that mixture. The system of heat-vaporisation and impoverishment with air may serve up to a point—perhaps even better for constant-speed aeromotors than in any other motor use—but only with very special devices, cumbersome and heavy; none of which can vie, especially at high and greatly varied speed and atmosphere conditions, with the simpler systems of direct atomisation.

CERTAIN GENERAL ESSENTIALS.

Of course, all such systems connote certain essentials in their make-up. One is, that the conduit system must be absolutely symmetrical: that is the piping from main-supply to inlet valve must be the same length in each case, so as to give exactly the same fluid-pressure, and hence the same dosage of fuel to each cylinder, invariably.

The Antoinette induction as it was, with its a.o. inlet-valves, amounted to little more than eight distinct Lunkenheimer mixing valves; but apart from the fact that an a.o. valve would be considered inadmissible—in V-type motor practice at least—it is just that little, a mere setting needle valve at the junction of the feed-pipe, which would be just as essential in the case of any direct-injection device with mechanically controlled inlet-valves of the usual kind: for the simple reason that the spring-compression or any other mechanical condition might vary. With petrol there might be no worse result than irregular carburation for a stroke or two; but with kerosene, unless the motor were fairly hot and running fast, immediate recondensation would occur.

AND ONE PARTICULAR WAY.

For this reason it becomes essential—in any direct-feed device designed to atomise kerosene, to make it impossible for the kerosene to be sprayed at all unless the air is inspired at the same time in its normal volume, and then only in proportion—under positive mechanical or physical control—to the amount of air inspired.

Here I may say, by way of encouragement, that it is not only possible, but in the last degree easily practicable to make the volume of air inspired both actuate the spraying, and regulate the amount sprayed, and to do both at the most appropriate instant of compression—anywhere about ten degrees before or after the dead point of piston instroke, the instant before firing.

Then, under those precise conditions you will have a truer example of an internal combustion—not explosion—motor, than any other except perhaps the Hornsby-Ackroyd oil-engine; and

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that irrespective of running speed according to aeromotor requirements. Given also that your setting valves were properly adjusted—that is to say a starving half-turn short of full out—you would get not only an absolutely clean, residue-less combustion, but a power result that would astonish you after petrol-explosions. Such in fine is the prospect for the use of kerosene as an aeromotor fuel.

THE ANTOINETTE WATER-COOLING SYSTEM.

But carburation is not the only detail in which the advantages of being a little different were displayed in the Antoinette outfit. The special water-cooling system scored in a way that is more than ever worth imitating now that the demand is so great for the highest powers, and consequently the dead-load of the water—which is at the expense of fuel and travel radius, appears to be such a tyrannical consideration. Such a reduction became possible to a mere 15 litres for 60 h.p. A further result of this system is that the degree of cooling automatically adjusts itself to the altitude of the moment, which means—or should mean, other conditions being equal—that the motor is always giving its best heat-and-power efficiency; which again connotes economical fuel consumption for distance flown.

How It Works.

How then was it done? Simply by designing the cooling

system so that the water should be automatically kept just below boiling point; in other words, so that the inevitable tendency for the water to boil should be made to effect its cooling with mechanical assistance. This result was achieved, first by means of a small water-tank from the bottom of which the water fed—or fell—into the cylinder jackets, partly by gravity and partly by the action of a gear-pump which drew the water out of the jackets from the hottest part thereof, and delivered it boiling into the water-tank again.

The steam which thus formed in the head of the supply tank then distilled over under its own pressure into a range of long aluminium condenser tubes outside the fuselage, on either side, exactly where the wind resistance would be reduced to nothing, practically. But on the rear end of the uppermost tube of each condenser series, a little blow-off-valve was fitted, to relieve the steam-pressure into the open air, and bring the prevailing pressure on the water in the condenser tubes down to atmospheric so that there could be no back-pressure reacting against the water circulation. Some little water was lost by way of escaped steam in this way, obviously; but so little as to be less than half a pint an hour for the whole; an amount that could be readily made up from the smallest of auxiliary supply tanks.

Finally, a second pump drew the water from the bottom condenser tubes, and delivered it back to the tank, cold, at a



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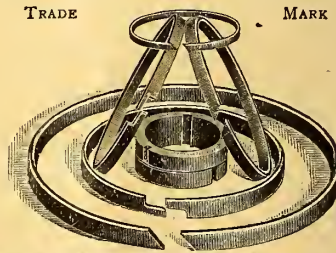
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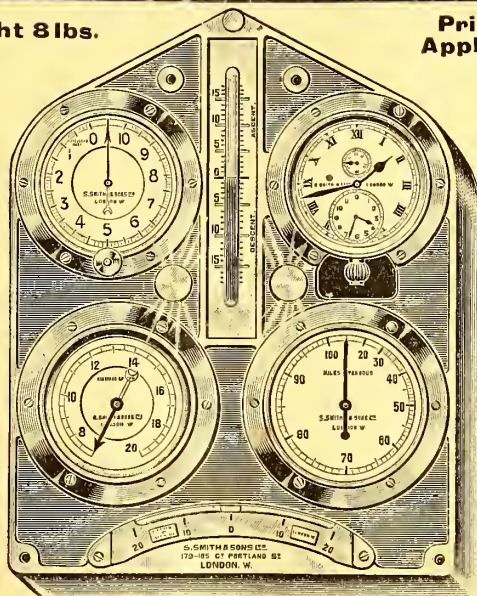
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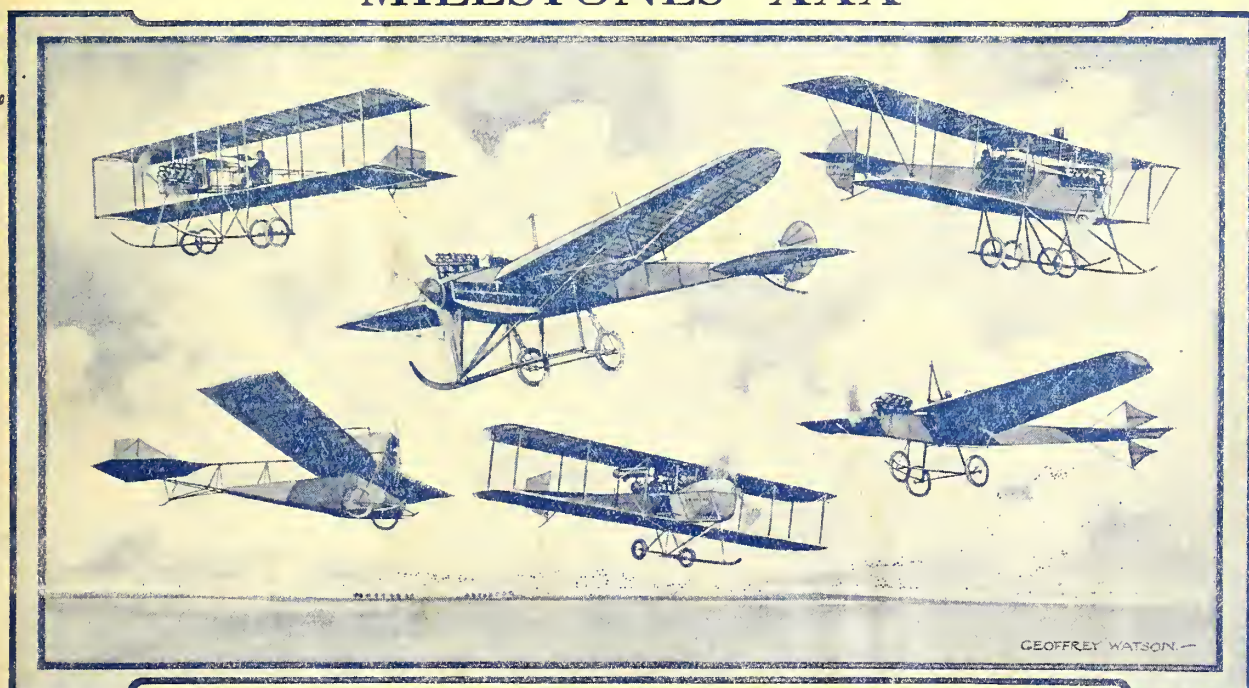
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ON THINGS AS THEY ARE.

It is earnestly to be hoped that there may be henceforth for a period a truce to destructive criticism of the Flying Services. The Air Debate in the House of Commons brought the present agitation to a climax, and one hopes that Lord Montagu's speech in the House of Lords, which was booked to take place precisely while this paper was going to press, has summed up the situation and has left everything clear for the constructive reformers inside the Services.

There is always great difficulty in making the ordinary respectable Englishman see the benefits of destructive criticism. He seems mentally incapable of realising that before you can build a new house you must break down the old one.

This attitude is literally a national characteristic, for in no other country in the world will you find so many ramshackle maze-like buildings of great size, from country mansions to industrial workshops, which have grown from bits stuck on here and there as the needs of the day required. Such houses may be very picturesque outside, and such factories may afford the founder of the business great joy by enabling him to point to a shed in a corner and say, "That was my first workshop." But for comfort, sanitation, and efficiency such buildings would be better swept clean away.

Nevertheless, the Englishman always prefers to patch and mend, and alter, and amend, and compromise, and wait and see what the demands of the family or of the industry really are.

The present Government is probably the worst in all history, with which a great nation has been afflicted in time of war, but I am inclined to think that it is truly representative of the English people in its outlook on life and in its methods. Only one is apt to forget that a country at war needs leaders, and not merely a representative parish council.

THE DESTRUCTIVE CRITIC.

Now, the part of the destructive critic strongly resembles that of the house-breaker—I do not mean a daylight burglar, but the gentleman who wears corduroy trousers and hobnailed boots, and who poises happily on two bricks of a crumbling wall what time he slogs at everything within reach with a pick-axe. His position is precarious; he may bring the whole edifice tumbling round his own ears and perish in the ruins; he destroys the cherished illusions of bygone builders and architects; he drops occasional undeserved bricks on perfectly innocent passers-by; he makes a horrid dust which annoys everybody; he exposes all sorts of indecencies to the public gaze; and when he has finished his work he has nothing to show for it except a bare open space. I have been a destructive critic for years, so I know that whereof I write.

Nevertheless, I claim that the work of the house-breaker is of greater value to the community than that of the jerry-builder, or of the jobbing-bricklayer-plumber-carpenter-builder who disfigures town and country by adding excrescences to inadequate buildings. The house-

breaker at any rate lets in God's clean air, and leaves a place where men may rebuild in the light of their predecessors' experiences, or where the man who has been forced by circumstances or by exiguous finance to build badly in odd bits, may set up a four-square edifice properly adapted to the work which he found he could not do in the old building.

If people will once get those plain facts into their heads, they may see the usefulness of destructive critics. The vermin which inhabit old insanitary buildings naturally hate the house-breaker. Nor is he likely to be esteemed by the original builders, and, similarly, destructive critics cannot expect to be popular. On this analogy, also, one may classify the destructive critic, according to his notoriety or to one's own taste, anywhere between the master house-breaker and the humble but effective tinned product of the illustrious Keating.

THE NEW AIR BOARD.

Lord Curzon's new Board has before it precisely the future which Lord Curzon chooses to make for it. If he chooses, as some of his adverse critics confidently expect, to act the super-mandarin, and support with all his great ability the acts of all his sub-departments in both Services, he may do an infinity of harm to the British Empire by stereotyping all existing faults into the growing Flying Services, without their manifold virtues, and so he may produce a vast force of ineffective and inefficient men and machines.

Personally, I do not expect him to do anything of the kind. The appointment of Lord Sydenham as his chief coadjutor seems to show that Lord Curzon is prepared to work with the best possible assistance. Incidentally, it is not without interest to note that no paper of high influence has strenuously advocated Lord Sydenham's qualifications for an important place in connection with any possible Air Ministry, and it is most encouraging to find the right man thus appointed without the ardent Press campaign which which too frequently preludes the rise of a personality to temporal power.

It is the more encouraging to me because this paper has taken the liberty of advocating somewhat strongly the appointment of Lord Sydenham. I shall, I think, escape being accused of the pride which apes humility when I say that I do not believe that the advocacy of this paper had anything to do with the appointment. I own to a reverence for the old Scottish prayer, "The Lord gi'e us a guid conceit o' ourselves," and I own to a "guid conceit" of THE AEROPLANE; but, for all that, I cannot see a paper which professes no more than to be the representative, if unofficial, organ of the Flying Services carrying any great weight in a Cabinet meeting—in fact, if I thought that the contents of this paper made any appeal to the mentality of most of the present Cabinet I should suppress the paper at once. I do not even imagine that THE AEROPLANE has played the part of the mouse in the fable to Lord Sydenham's lion. I merely point out that this paper expressed the views of people who know what the Flying Services need, and

that the appointment coincides exactly with their views—which is very encouraging.

In all seriousness, no better appointment could have been made. Lord Sydenham's career has been extraordinary, in that he has won to unadvertised eminence—the best form of eminence—by sheer ability and without pull. Whether as George Clark the soldier, Sir George Sydenham Clark the successful Colonial administrator, or as Lord Sydenham the eminent authority on strategy, the ruling of peoples, and the higher diplomacy, his personal honesty and his high ability have been alike admirable, and have been based on a character of singular strength. The science, the military art, and the history of British aeronautics will be the better in every way for Lord Sydenham's personal interest therein.

One hopes to see Lord Montagu occupying an important place on the new Board, for his personal knowledge of aviation and his proved grasp of future possibilities fit him particularly for an advisory position alongside Lord Curzon.

Of Major Baird, the Board's representative in the House of Commons, one knows nothing so far as aircraft are concerned. He must give such replies to questions as his department furnishes to him, but he is a soldier and a gentleman, which will assure to serious questioners a plain and courteous answer, and in many ways he should impart a pleasing change to the process of aeronautical debate.

A HERCULEAN TASK.

The position of the new Board is a difficult one. Lord Curzon is asked to bring about by tact and persuasion changes and developments in the Flying Services which only a fairly strong Minister could produce by definite orders when in undisputed command of a department. Also, he is asked to influence to his own views a War Council which includes Lord Kitchener and Mr. Balfour. Still, Lord Curzon was ever at his best in an up-hill fight, and one does not despair of seeing him and Lord Sydenham in alliance so demonstrate the efficacy of the Air Board that it may in time develop into a Ministry.

Its success depends largely on Lord Curzon's willingness to take advice from the right quarters. His recent report to the Prime Minister—or, rather, the published effect of that report—indicates that he has already sources of information which actually inform and do not merely excuse. One hopes to see him acquiring still more and more information and gathering to himself advisers of the type of Lord Montagu, who know things of their own knowledge or can besides always get first-hand information from the men who fly.

The ordinary chain of information from flying-officer to flight-commander, to squadron-commander, to wing-commander, to brigadier, to G.H.Q., to Director at the War Office is useless when dealing with an entirely new thing like flying. Even the most sympathetic brigadier can hardly ever get a young officer to open his heart to him on the merits or otherwise of a new machine as that same officer will talk to the people who made the machine or people who knew him when he was only a civilian pupil; and it is the first-hand, or at worst second-hand, information the Air Board should have, not information filtered and distilled through the usual channels till the original cause of offence has disappeared.

Meantime, one wishes well to the Board. It deserves to be given every chance of making itself a success. No one imagines it to be an ideal method of arriving at an end. But it follows a precedent—namely, the Derby Committee—and it effects a compromise between that and an Air Ministry, so that it fulfils the essentials of the English constitution.

THE WHOLE-HOGGERS' OBJECTION.

Whole-hoggers for an Air Ministry are not satisfied, naturally; but who can imagine a parthenogenetic Air

Ministry? Where is the Jovian brain to produce it? Figure to yourself any politician, or, indeed, even a man, being planted in the middle of Whitehall, half-way between the Admiralty and the War Office, with an empty portfolio under his arm, neatly embossed with a gilt crown and the words, "Air Ministry." The odds would be greatly in favour of his making a motor-bus his car of Juggernaut in sheer bewilderment at the prospect of where he should begin.

Possibly, if he succeeded in making the pavement in safety he might—in pursuance of precedent—commandeer an hotel as the proper place for a Ministry or a new department in these days, but after that he would be hopelessly flummoxed. Lord Montagu might help him out, or Mr. Pemberton-Billing would present him with a cut-and-dried scheme complete to the last button; but the latter would fail because it would lack precedent and compromise, which would be unthinkable in England.

THE REST OF THE DEBATE.

As to the rest of the debate, though it is reported rather voluminously hereafter, it really contained little of constructive interest, though from the historic side it is of great value. Mr. Joynson-Hicks was better than usual and had his facts well marshalled.

Col. Churchill was more brilliant and yet more convincing than is even his custom. Those petty minds which delight in abusing Col. Churchill will find here a modest and strictly accurate description of what he did for the R.N.A.S. and what the R.N.A.S. did for the country in the early days of the war. It is well to note that only after Col. Churchill's driving-power was removed did jealousies and intrigues inside and outside the R.N.A.S. and the Navy itself bring about the lamentable state of affairs which left the R.N.A.S. not many months ago without a single war aeroplane of the first class—except, perhaps, a few which our loyal Allies the French permitted us to buy from the French trade.

The clarity of Col. Churchill's arguments, his beautiful command of language, his personal knowledge of his subject, and the obvious absence of fatigue from his speech encourage one to hope that he may yet return to take a very big part in building up the Imperial Air Fleet of the future.

Lord Hugh Cecil, a charming gentleman, accepted by the House as an authority on aviation because he is an R.F.C. officer and learned laboriously to fly in January, 1915, made a charming speech which demonstrated most convincingly how dangerous is a little knowledge, especially when, as he naïvely admitted, it is gained by being for three months at a place 25 miles behind the fighting-line. It would appear that such a point is less of a Service nerve-centre than is 166, Piccadilly.

In the matter of night-flying, Lord Hugh had evidently never heard of lights on aeroplanes which make it possible to land over open country, nor does he seem to have heard of landing-grounds which are only lit up—electrically—in response to a signal from above. Nor does he seem to have thought of aeroplanes capable of flying all night. I counsel him to pay a visit to Commodore Godfrey Paine, R.N., late of the Central Flying School.

Furthermore, he talked charming but none the less actual drivel about the speed of aeroplanes in the air and over ground. And he drew an utterly false analogy between the Command of the Sea and the Command of the Air.

Though on active service, he seems to have been exceedingly limited in his experiences. One gets real knowledge only by discussing all things with all men regardless of rank or station, by weighing their opinions against their known prejudices and peculiarities, and by sorting out and, so to speak, editing the result.

Nevertheless, the name of Cecil, especially when

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coupled with the initials R.F.C., is enough to give authority in the House.

Mr. Bonar Law, as *locum tenens* for Mr. Asquith, seemed chiefly concerned with attempting to discredit Col. Churchill and Mr. Pemberton-Billing. Mr. Bonar Law appears not to like either of these gentlemen, and he spent much time and trouble over them to little effect. He is probably the dullest speaker who ever sat on the Treasury Bench, and his speech, which was very long, was about as inspiring as a hardware catalogue, therefore the bulk of it has been elided. From reading it all one imagines that it was responsible for clearing most of the House before Mr. Billing got up, and possibly this clearance suggested to the Coalition Whips the ingenious idea of extracting the remainder of their obedient servants and so counting Mr. Billing out.

Mr. Pemberton-Billing's speech was not up to his best form; it was too much on the personal note. He can really afford to ignore the gibes of people of the Tennant

class. Moreover, he is obviously worn out with the effort of fighting the whole House of Commons alone. Some of the things he has done which have annoyed and even alienated those who at first were inclined to support him have been purely the result of nerves overwrought by the terrific physical strain he has undergone.

If he is wise he will take a month's or six weeks' complete rest in the country and let the House stew in its own juice. Mr. Billing is far from done with, for those who know him best know that when he is apparently down and out is just when he is most dangerous to his opponents. Still, he needs a rest, and if he goes off for a while his opponents may be lulled into a false sense of security.

The Air Board will be getting to work in the meanwhile, and he will do well to leave the development of aviation for a period in the hands of the Board. After a month or two it will be possible to see whether the Board needs help and encouragement or whether the house-breakers must get to work again.—C. G. G.

The Air Debate of May 17th, 1916.

Mr. Joynson-Hicks: I beg to move, "That this House urges that His Majesty's Government should without delay take every possible step to make adequate provision for a powerful Air Service."

I wish to refrain from making anything in the shape of a party attack on the Government, and the resolution will enable the debate to be as wide as possible. I do not think that I have spoken on this subject since I moved an amendment to the Address on February 16th last, about three months ago, and the object of my motion to-day is rather to deal with what has happened from February 16th last up to the present time, and prove to the House that no real answer has been made by any Government Department to the contention I put forward in that debate, that both our Air Services should be unified under a Minister responsible to this House. We have had nearly twenty-two months of war, but I do not propose to go back beyond the commencement of the war period, but I think that the Under-Secretary for War will agree that whatever information the Government Departments had before that time, within two months of the beginning of the war the Army and the Navy knew exactly what the possibilities of the Air Services were; they knew what aeroplanes could do, and the early reports of our Field-Marshal show conclusively the value which the Army in the field attached to the Air Services. They also knew very soon after the commencement of the war the possibilities of Zeppelin raids and what could take place when Zeppelins arrived over our shores. It is now fifteen months since the first Zeppelin raid, which occurred on January 19th, 1915. I want to make it clear that my condemnation of the Departments concerned arises from the fact that they had ample and definite notice in this House and outside of the actual state of affairs, and I shall ask the House to say, that Ministers who have not taken efficient steps in face of the warnings they have received shall not any longer be entrusted with that Service, and that some other Minister should be appointed to take over the duties in which they have failed.

On July 20 I said (that was ten months ago to-day):

"I am asking that there should be immediately provided a sufficiency of powerful fighting machines in order that the Zeppelins may never start from the other side of the North Sea."

The Prime Minister intervened in that Debate, and he informed us that the Government would be grossly negligent in its duty if it did not make every effort both to extend the mechanical development of the aeroplane and to secure an adequate supply of pilots.

"Speaking with knowledge and authority, I say that at this moment it is being developed and expanded in every possible way, under the best auspices and the wisest guidance."

The Under-Secretary of State for War (Mr. Tennant) also intervened in the course of the Debate, and told us:—

"A policy has been decided upon, and that policy is being carried out as rapidly as it possibly can be."—[Official Report, July 20th, 1915, cols. 1351-3, 1367 and 1382.]

I do not think I need quote my speech in November, but I pointed out that in the spring there would be an increase of aeroplanes and a recrudescence of aerial offensive on both sides, and I asked my right hon. Friend if he could not, with the assistance of scientific advisers, devote the intervening winter months to the preparation and completion of an up-to-date really powerful aeroplane engine. I asked him to devote himself to a powerful engine, in order that our aviators might go up and fight the Germans on a machine which was equal to the German machine.

The right. hon. Gentleman the First Lord of the Admiralty

replied on behalf of the Government and told us, and I think quite rightly, that it all depended upon munitions.

With regard to the absence of anti-aircraft guns, the right hon. Gentleman said:

"The House must accept that as an unfortunate fact, which is being remedied, which has for months been in process of being remedied, is from day to day improving, and will get right, I hope, before a not very long time."

That was six months ago, and I am told that many months after that a wooden gun was put up at a certain place. It was admitted in a subsequent Debate that we were short of anti-aircraft guns.

Everything was being done both in July and November of last year. What was the defence in February of this year? I was dealing then with defence against Zeppelins by aeroplanes. My right hon. Friend the Under-Secretary of State for War assumed a complete surprise. He said that aeroplanes were intended for fighting purposes only, and not for defensive purposes against Zeppelin raids.

The Under-Secretary of State for War (Mr. Tennant) made an observation which was inaudible in the Reporters' Gallery.

Mr. Joynson-Hicks: I beg the right hon. Gentleman's pardon. I take this out of his speech. He told us that there were four purposes for which aeroplanes would be used, and he went on to say that they were never intended for defensive purposes against Zeppelin raids. This was a new proposal in February, 1916.

I cannot help thinking that the Under-Secretary would not have made this speech in February if he had realised that two years previously the First Lord of the Admiralty had told us that aeroplanes were to be used in a swarm as a defence against Zeppelins. At all events, the right hon. Gentleman opposite knew that thirteen months before aeroplanes had gone up against Zeppelins, and he knew that one Zeppelin at any rate had been successfully attacked by an aeroplane, and that it was at least possible that aeroplanes could be a good defence against Zeppelin raids.

There is one more quotation I am going to make, and I hope it will be the last. I hope that arrangements will be made to render unnecessary these constant attempts to "ginger" the Government:

"We do not require a Debate like this; we do not require an Amendment to the Address; we do not require invective against the Government to make us put forth our best efforts."—[Official Report, February 16th, 1916, col. 109.]

It seems to me that is exactly what the Government have required and needed.

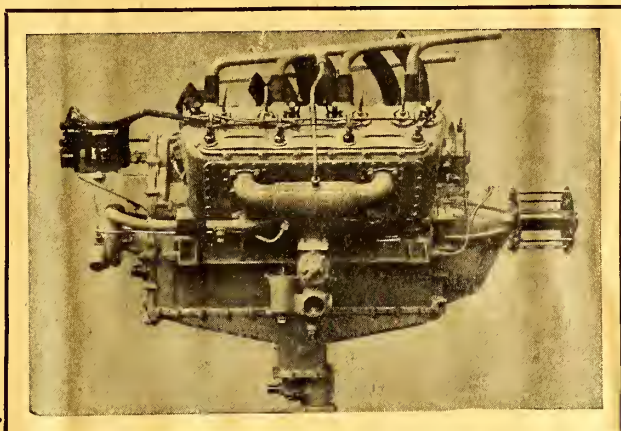
I really tremble to think what would have happened to the Air Service if, during the last few years, a small body of Members had not tried to ginger the Government.

May I give the House one or two instances with regard to the warnings the Government have had on this question of anti-aircraft guns? Some three years ago a captain in the Royal Field Artillery wrote to the Board of Ordnance warning them that the anti-aircraft guns were not satisfactory. He put a proposal before them for an improved gun. He warned them that the pom-poms were of no use against Zeppelins or aeroplanes, and yet we have been using them and are still doing so in certain parts of the country. How did they treat that warning?

A member of the Board wrote to him: "Your invention is the cleverest that has come before the Board in my time. Do work at it and press it."

After that he set to to improve the plans. He saw the Board several times, and was asked for drawings, and night after night after battles and fighting in the trenches he sat down in his dug-

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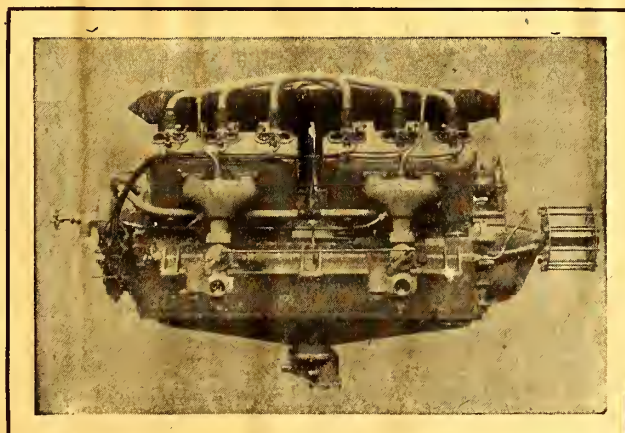
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out and perfected his plan for an anti-aircraft gun. He came back home and worked at the Ordnance Board for six days. The Munitions Board wrote and asked if he could not be spared to stay over here and perfect his invention, and the Army authorities replied that he was needed at the front and they could not spare him in order that he might perfect at home this very important invention. He went back again to the front, and was continually engaged in fighting until September or October last year, when he came back. He again went down to the Board about his invention, but it was of no avail, and when he got back to the front he wrote in exasperation, and said: "Is the Army going to take up this proposal for an improved anti-aircraft gun?"

In six weeks' time he got a letter in reply, and the answer was "No."

I do not know whether his improvement is a good one or not. I am not here to say anything about that. The case is to be investigated by the right hon. Gentleman, but the fact remains that for nearly three years this improvement in anti-aircraft gunnery was before the authorities, and in the end the officer gets an answer in the negative.

Mr. Tennant: Perhaps I may be permitted to ask to what Board he wrote. Was it the Ordnance Board or the Board of Invention?

Mr. Joynson-Hicks: The Ordnance Board.

Mr. Tennant: I understand that that is under the Ministry of Munitions.

Mr. Joynson-Hicks: Yes, and the Ministry of Munitions asked that this officer should be allowed to stay at home in order to perfect his invention.

My right hon. Friend asked me during the last Debate to go over to Horse Guards and see the arrangements in regard to the defences of London. I went, of course, and I say unhesitatingly—I am not going to describe what I saw—very great improvements have taken place in regard to notification, telephones, and so on.

Mr. Tennant: Hear, hear!

[One can understand Mr. Tennant applauding anything which would give warning and assist him in wriggling out of the way and under cover, instead of putting up a fair fight. Telephones, forsooth!]

Mr. Joynson-Hicks: My right hon. Friend applauds the statement. It is only fair to say that the officer who showed me round pointed out with very great pride that all the improvements that had been made had been effected since January of this year. [Or perhaps since an article on signalling the approach of airships to a central control station, written by Mr. Pemberton-Billing for the "Daily Mail," was held up by the authorities while its merits were investigated by the War Office.] But we have been trying to get these improvements, not since January, 1915, but since January, 1914. That is my complaint. I admit that something has been done. If nothing had been done, why, good gracious, the right hon. Gentleman would have been hung up on a lamp-post long before now.

The very fact that the arrangements for the defence of London with regard to Zeppelin raids were not put on an efficient basis until thirteen or fourteen months after the first raid took place is a condemnation of somebody in the Government. I am prepared to admit that the defence of London against Zeppelin raids is, as far as one can see at the present moment, very efficient indeed; but the very fact that it has been made efficient is a condemnation of somebody who was responsible or is responsible for the defence against Zeppelin raids, and the men and women who suffered six months ago from those raids are entitled to say to the Government, "The very fact that you have now put London in a proper state of defence shows that you are responsible for the deaths that occurred on the occasion of those raids."

But apart from London, as I think the House will admit, the position in the country is not nearly as satisfactory. The right hon. Gentleman told us that the whole country could not be fortified. That is perfectly true. But much more could be done than is being done by means of mobile anti-aircraft guns, if you have efficient anti-aircraft gunnery corps of a mobile character. Take that particular section on the East Coast from the Wash down to the Thames. I do not propose to set out the whole scheme, but I do suggest that some fifty or sixty decent guns, with decent searchlights, on mobile forms of traction, would be a sufficient defence against Zeppelins coming over. It has already been put before the Government; it has been approved of by a gentleman in a high position who was responsible some little time ago for certain of the gunnery defences of London. Why has it not been carried out?

Mr. Tennant: Who says it has not?

Mr. Joynson-Hicks: I do.

Mr. Tennant: You are wrong.

Sir E. Carson: What we want to know is, has it been carried out?

Mr. Joynson-Hicks: The right hon. Gentleman will have an opportunity of replying. I would like to tell him that a certain anti-aircraft gunnery corps, of which I spoke three months ago, is still in the Eastern Counties to-day armed with the same pom-poms and the same maxims. It is quite true they have had a certain number of new guns which were sent to them soon after the last Debate. These guns are machine guns, but if they are

to be fired with the ordinary machine-gun ammunition they are of no use against Zeppelins. If they are to be fired with a particular class of ammunition, then I may tell the right hon. Gentleman they have not got that particular ammunition to this day. These guns were sent round to the Eastern Counties months ago to fire a certain form of ammunition which has not yet been supplied.

I am going to tell the right hon. Gentleman that if proper guns had been provided for the corps, in all probability Zeppelins would have been brought down six or eight months ago. Let me quote, with regard to one or two raids, the Official Report. The raids were on the East Coast, and the Report says:

"Gun Commanders report that the Zeppelin was a splendid target, and more powerful guns would almost certainly have caused considerable damage."

I want to read to the House another letter sent to one of my colleagues. It is from a gunner, who wrote quite recently:—

"We feel strongly about the almost criminal folly of leaving a fairly useful and exceedingly well-trained body of men to kick their heels about, armed only with antiquated pom-poms and maxims, guns which, even if they were up to date, are perfectly useless for our purpose."

The members of these corps, keen, eager, and anxious as they are to take their part in the defence of the country, complain that they have not yet been given the guns which the right hon. Gentleman the First Lord of the Admiralty told us months ago were being remedied and pressed forward. The real trouble both here and abroad with regard to our Services is the lack of imagination in the official heads of the Services in this House as to the possibilities of what can be done with regard to air raids.

THAT BOASTED COMMAND OF THE AIR.

My right hon. Friend has recently rather congratulated himself, as we have seen in the public Press, on our having brought down a number of foreign airmen. I am prepared to stand here and say we have not yet got command of the air at the front. But here and now I say we have not got command.

If the House will bear with me, I would like to read one or two extracts from letters. Here is one from the front:

"We have had further illustration of our not having the mastery of the air. Three days ago bombs fell all round our billets. Squadrons of Taubes came practically without interference in full daylight and returned when they had done to their own country."

"The German Fokker machine has been in active business for a very long time now—I suppose a year—and has of late increased and multiplied so far that its depredations have compelled the attention of the authorities."

"Such fighting machines as we have been in possession of until now have been fast enough in their way."

Lord Hugh Cecil: Is that from an Infantry officer?

Mr. Joynson-Hicks: Yes, from a captain in the Royal Flying Corps who has already received a Military Cross for bravery in this war. He was over here not very long ago, and he wrote a letter with regard to the condition of our flying grounds with regard to Zeppelin raids. Perhaps I had better not read the whole of the letter, because it might give information to the enemy, but with regard to the mastery of the air it gives no information of use to the enemy, and it is only right that the House should know the views of an authority upon this matter. This officer is flying every day. He says:—

"At the front the tales you are told about our mastery of the air are known by all of us out here to be absolutely incorrect. We have not got the mastery. We have the pluck, we have not got the machines. It may soothe the British public's mind, but we airmen know the truth."

That is not a satisfactory position. That is not really a position in which we ought to put our men, gallant as they are.

Later than this and only the other day there was another case. A young officer went up to make a reconnaissance on one of our machines about which I have been complaining for months past. It was a good machine in its way, but was not suitable to meet the Germans because it was not fast enough. He went up to do his reconnaissance. He was above the clouds, he came back, and on his return said he had seen nothing.

His superior officer said: "Why do you not go beneath the clouds? They are only 3,000 feet?"

He said: "No, sir, not on this machine. If I had a fast machine I would go, but this machine is not fast enough, and it is too dangerous to do it at that height."

After this discussion the superior officer said that he would go himself. He was a brave man. He went up, and within ten minutes he was shot dead.

Mr. Pemberton-Billing (sitting below the Bar): Shame!

Mr. Joynson-Hicks: That was because the machine was not sufficiently quick enough to enable him to escape the German guns.

Mr. Speaker: I must inform the hon. Member for East Hertfordshire that as he is sitting outside the House he must not make any interruption. If he wishes to interrupt he must come inside the House, which is the proper place.

Mr. Pemberton-Billing (from inside the House): I was not aware that I was outside the House. I will exercise the privilege

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of remaining inside the House so that I may maintain the privilege of making any comment I think fit.

Mr. Speaker: That was why I informed the hon. Member and asked him to come in.

Mr. Joynson-Hicks: Here is another letter, not sent to me, but sent to one of my colleagues on these benches:

"Will you take part in pressing upon the Government the necessity of supplying our airmen with higher power machines, so as to enable them to fight the German machines on equal terms. At present there are four German machines which are faster than the machines on which my son is every day being sent up."

That letter was handed to me. Before I could use it, I wrote to the father and asked him whether I should be absolutely safe—he is a man occupying a high position, and his name would be well known here—in using that letter, and whether he could give the names of the four machines. He sent me a letter this morning giving the names of the four German machines, all of which are superior to the machines on which our men are sent up.

I myself have been out to the front and seen the organisation of our Air Service there. It is splendid, I do not dispute that for a moment. The organisation is good, the men are good, and the machines of a type are good. They are magnificent machines, but they are not fast enough, and have not sufficiently high engine power. I saw any number of new machines, all of the same old type of machines that we used when the War began, with the same old engines of eighty-five, ninety, and ninety-five horse-power. What I have been trying to impress, time and time again, is that you cannot meet a German machine of 150 horse-power with an English machine of 90 or 95 horse-power. That is my whole case against the Flying Corps, as I told the right hon. Gentleman in private conference some time ago.

What I want is to have someone in charge of the Air Service who will stop the making of these machines. My right hon. Friend knows that a contract was given a little time ago to an English firm for 1,000 90-horse-power engines. They are being pressed for delivery still. Why is not that contract scrapped at once and a new contract entered into, not for 95 horse-power machines, but for 200 horse-power machines? I know that there are other higher horse-power machines being built, but what is the good of turning out 1,000 engines of 95 or 90 horse-power?

Up till now our machines have been maids-of-all-work. They have had to carry a pilot, an observer, one or two guns, ammunition, a few bombs here and there, photographic apparatus, and wireless equipment. No wonder they are called "Christmas Trees" at the front. They are decked all over with all kinds of these things, and they cannot go more than the certain number of miles per hour they went at the beginning of the War.

We want at least four types of machines, not in tens or dozens or twenties, but some of them in hundreds. These machines can be made in England. The other day I heard of an excellent machine, a new machine, which I am told is going to be made and which can go, as I have asked for years in this House it should be able to go, from Dunkirk to Essen and back again. The other day I asked a gallant young officer whether, if I could give him 100 machines capable of flying from Dunkirk to Essen and of bombing Essen or the Rhine bridges, he could find 100 pilots to volunteer to do it. The young fellow's eyes blazed up, and he said, "Good God! Yes." The young men in the Flying Corps are anxious to do it. They only lack sufficiently high-power machines. We want these machines, not merely in scores, but in hundreds.

There is no harm in mentioning the fact that one big firm in France recently had an order for 2,500 machines, and at the present time they have a thousand machines in reserve at their works which have not yet been delivered to the French Army. Who ever heard of an order of that kind being given to one of our British firms? Some English firms have told me that they could do more than they are doing, that they could put up bigger works and turn out more machines. It is not a lack of ability, it is a lack of imagination in high quarters.

If we had the real command of the air in Flanders we should come very much nearer to ending the War. There would be no German reconnaissance, they would know nothing of what we were doing behind our lines, their artillery would be blind, they could not tell the effects of their gunnery, and they would not know where our batteries were.

The aeroplanes communicate by wireless exactly where the batteries are placed. If we had the command of the air the Germans could be completely blinded.

Mr. Tennant: Does the hon. Gentleman suppose that our aeroplanes do not do the same thing in hundreds of cases, as compared with the ten cases of the Germans?

Mr. Joynson-Hicks: Of course they do. The right hon. Gentleman either does not or will not recognise that my argument is directed to a heavy offensive movement which will give us command of the air. My complaint is that the political heads do not seem to realise what command of the air means. It would mean the blinding of the German Army. It would mean that we should have reconnaissance work, that we should see everything and be able to place our batteries exactly where we wished, and that we should be able to send raids on the German lines of

communication, not merely with twenty or thirty aeroplanes—what I want is 500 to-day, 500 to-morrow, and 500 the next day. What would be the result of that? The absolute command of the air. The German lines of communication, the German batteries, the German stations, the German trains, the German convoys, the German ammunition columns—everything would be bombed flat.

You may say it would not succeed—I believe that is the attitude of a great many people—but at least it could be tried, and there should be a possibility of trying it.

In conclusion, I want to ask whether we are to go on permitting those who have been responsible for the position of affairs up to date to still go on managing them or whether we are to have a new head for the Air Services? We have had Sir Percy Scott, Lord Kitchener, Lord French, Lord Derby, Lord Montagu, and my right hon. Friend himself, and we see the position of affairs to-day. What we want is somebody who will take charge of the Services, who will amalgamate them and who will prevent friction, for friction does go on at the present time.

We want somebody who will prevent competition in regard to the supply of machines, who will take charge of the Factory [i.e., The Royal Aircraft Factory], which is spending over £10,000 a week in wages to-day, the factory whose head is paid the salary of a field-marshal. That factory is hated both by the Flying Corps and the Royal Naval Service, and it is a factory which many of our best flying officers regard as being a hindrance rather than a help, except from the experimental point of view, in regard to which it is doing quite good work.

We are told by the public Press that something is going to be done and that some announcement is going to be made to-day, but I want to warn my right hon. Friend that no mere reconstruction of previous Committees will do any good in regard to this question. We do not want Committees, and we do not want a man of the eminence of Lord Curzon sitting as chairman of a Committee, perhaps two or three days a week, and thereby wasting his time, in the same way that Lord Derby and Lord Montagu wasted their time when they were on that Committee.

Personally I desire to guard myself from supposing that Lord Curzon would not make an efficient Air Minister. The question is whether he is going to have the power which will make him an efficient Air Minister.

May I appeal to the Government not to make another board or another committee, but to put some man in charge who will be responsible, some man with a reputation to lose, and not a man who wants to make his reputation. It is going to be a business in which failure is quite possible, a business which a man would only take if he is prepared to risk his reputation for the good of his country.

Mr. Montague Barlow: I beg to second the Motion.

With most of my hon. Friend's remarks I am entirely in agreement but with one in particular, and that is that this question of defence and offence in the air has got to be settled mainly at the front, and not in this country. At the same time I want to say a word on a side of the subject which has not been so much emphasised by my hon. Friend. There is, undoubtedly, an uneasy feeling in many parts of the country with regard to the question of defence against air attacks, and it is desirable that that uneasy feeling should be recognised.

We bear in mind the words of the Under-Secretary which he used on February 16th last:

"It is not really a feasible method of defence to say that all parts of this country are capable of protection against this particular class of warfare. To say that would be misleading the public. It is not possible."

I represent a Constituency in Lancashire, where we are a good deal concerned about these words of the Under-Secretary. We feel some doubt whether possibly we may be a locality where those words apply, and when the fact that I was to take part in this Debate was announced, I received telegrams from the mayors of Salford and Manchester dealing with this very point. I will read one to the House. The Mayor of Salford wires:

"Salford inhabitants are very concerned as to air defences in this district. Hope you will urge Government to take adequate steps."

I have received a similar telegram from the Lord Mayor of Manchester in considerably stronger terms. I will show it to the right hon. Gentleman, if I may. I will not read it, because it contains one or two statements which, I think, might possibly be characterised as conveying information which had better not be conveyed to the other side. But there is a very considerable feeling of uneasiness. Do not let anyone imagine I am suggesting there is panic, or anything of that kind, because there is not. One of the most gratifying effects of the Zeppelin raids in London was to show that, whatever happens, there will not be any feeling of panic. What we ask is that the Government should take all possible steps to secure us against attacks.

We are all waiting anxiously for the announcement of what is going to be done. But surely we are entitled to say this to the Government: "It was perfectly open for you to have done this ten or twelve months ago. The reason for doing it was just as urgent then as it is now," and without doing or saying anything which can impede them in the course of their conduct of the War, we urge them to put an end to this kind of proceeding with

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regard to the whole Service. We urge them definitely to adopt an energetic, a large, if you like an expensive policy, but at any rate a policy which will give us the best means of offence and defence, and which will enable us to feel that when our magnificent and heroic Flying Corps go up and undertake their perilous task, they are flying in machines which are the best that money and brains can produce.

Mr. Tennant: The hon. Member (Mr. Joynson-Hicks) has given the House an historic survey of a good many discussions which have taken place in this House and warnings which he himself has given to the Government as to the desirability of taking further steps for the improvement of the Air Service of the country, and he complained that a speech which he had made on February 16th, which was one of his greatest triumphs, has received no answer. If I were not, to use the classic language of the motor trade, a shock absorber, I should really be surprised at that statement. I have received so many similar shocks from various quarters of the House that I may well claim that title.

[When one considers how little a shock-absorber does to produce definite progress in a car, the simile is distinctly apposite.]

I am a little surprised that the hon. Member (Mr. Joynson-Hicks) should not have been a little more handsome in acknowledging the improvements which have been made. He was handsome—I do not want to mislead him as to what my feelings are—as to the development of what has been done at the Horse Guards, with regard to information and, I think, to guns, but, with regard to other matters, I do not think he was quite fully appreciative, from my point of view, of the successes which have been achieved. There has been this vast extension and enormous development in our Service.

I have one other complaint against my hon. Friend, and that is that he brings forward statements from various sources, letters, and so forth, making complaints and allegations which he must know, if he reflects, it is impossible for me to answer. Not that there is not an answer, because there is, but it is impossible for anyone with a responsible position in the Government to divulge facts and give information which it would be very undesirable to give. I do ask the House to believe me when I say it is not a subterfuge, and that there are many things which I could say which I ought not to say, and which it would be very improper for me to say. [Mr. Tennant deserves credit for recognising that so little conviction does he carry that any statement of his may be regarded as a subterfuge.]

I would like the House to realise that the system of warnings which has been set up and which we have adopted for Home defence is now complete. We can tell in any place in the country what is anticipated. [One still has doubts, and, anyhow, why was it not arranged a year ago?]

In regard to guns and lights, which was a point dealt with at considerable length by the hon. Gentleman, I do not want to say that we have all the guns we want—I cannot say that—but I say we are getting them.

I may say that I do not think it is at all proper for persons who are in the employment of the State to make the kind of allegations which have reached my hon. Friend. Complaints by serving soldiers, complaints by persons in the service of His Majesty, ventilated in a manner and used as a stick with which to beat the Government—surely that is not a thing which ought to be encouraged.

Mr. Joynson-Hicks: I think my right hon. Friend is a little unfair. I have not used this as a stick to beat the Government. I have not brought up a Vote of Censure to-day. I have put on the Paper a very wide Resolution, and my sole object, without party considerations, is to improve the condition of the Air Service.

Mr. Tennant: I withdraw that, if my hon. Friend wishes me to do so, and if he takes exception to what I say. Let me say, not a stick to beat the Government, but arguments and statements made for the encouragement of the Government. At any rate, I do not think that we ought to encourage these sort of statements from people who are in the service of the Crown. [Messrs. Tennant & Co. seem to forget that the Army is not run to keep them in their jobs, but is a Citizen Army fighting for home and families against enemies abroad, and also against those at home who fail in their tasks. And so Service custom of the old kind hardly applies in these days.]

Mr. Joynson-Hicks: How are we to get the information?

Mr. Tennant: One statement made by the hon. Gentleman to which I take exception is that the mobile guns have not been adopted by the Government. He is quite misinformed if he thinks that is so. Again, I say I cannot go into details. I can state, however, in regard to guns and gunnery, that we have established a school of gunnery for officers, with a special course of instruction. We have various types of guns in use, and men are trained on guns which they will use. I understood the hon. Gentleman to say that was not so.

Mr. Joynson-Hicks: I never said anything of the kind.

Mr. Tennant: I understood the hon. Member to say that the officers were trained in the use of guns which they would not use.

Mr. Joynson-Hicks: I never mentioned anything of the kind.

Mr. Tennant: Perhaps the hon. Member will forgive me. I could not catch what he said. The hon. Member dealt at considerable length with the command of the air. He said that we

utilise our flying machines for every kind of purpose; that we use one machine for all purposes. He really is mistaken there. We have various machines—machines of every kind. I do not know exactly what the hon. Gentleman means when he uses the phrase “the supremacy of Great Britain in the air.” If he means that no German machine shall be allowed to go up into the air at all I think he is asking for a very great deal.

Mr. Joynson-Hicks: The right hon. Gentleman asks me what I mean. I mean in regard to the air exactly what everybody means by the supremacy of the British Navy on the seas.

Mr. Tennant: I do not want to say what I do not think is absolutely true, but I do say that it is very far from the truth to state that the Germans have got the supremacy of the air. I believe, on the other hand, that we have a very large measure of supremacy of the air, and that in the great majority of combats which take place in the air we are the winners, and not the losers.

Mr. Joynson-Hicks: Hear, hear!

Mr. Tennant: As to reconnaissance and wireless. We do an infinite amount more reconnaissance work than the Germans have ever done in spotting artillery. I am informed that we have at the present moment two types of aeroplanes faster than anything possessed by the Germans, and we have two other types as fast as their fastest. I make the hon. Gentleman a present of that and ask him to investigate it and see if it is not true. That is the information which is given to me. If these are facts, and I believe them to be true—

Mr. Joynson-Hicks (was understood to say): How many have you?

Mr. Tennant: I am not able to give that information, nor do I think it desirable to do so.

Mr. Lynch: Two types faster than the fastest possessed by the Germans?

Mr. Tennant: Yes. I want to say another word in regard to what my hon. Friend said about landing grounds. He made a complaint, when he spoke on a previous occasion, that we had not a sufficient number of landing grounds for night flying. Probably he did not say that to-day, because he knows that that defect—if it were a defect—has been remedied. We have a sufficient number of landing places. Arrangements have been made and are made by those who are practical fliers, and they use the grounds at night. We have provided these facilities with the approval of the pilots, and if my hon. Friend thinks that that is not a correct statement, and is a too sweeping statement, we are quite prepared to have the matter inquired into by the Committee of Inquiry which, as the House knows, has been set up.

It has been suggested to me that some of our practical flying men ought to have been put upon the Committee. I would ask the House to consider what that means. What practical flying man is there who is not rendering much better service to the State at the present moment than by sitting on a Committee of Inquiry to investigate charges made by a Gentleman who has lately been added to the Members of this House?

Mr. Pemberton-Billing rose—

Mr. Hogge: He won a seat anyhow.

Mr. Tennant: Yes, and my hon. Friend has even won a seat.

Mr. Pemberton-Billing again rose—

Mr. Speaker: The hon. Member is not entitled—

Mr. Pemberton-Billing: On a point of Order—

Hon. Members: Sit down!

Mr. Pemberton-Billing: On a point of Order—

Mr. Speaker: I must inform the hon. Member that he is not entitled to rise and to interrupt any other hon. Member during his speech unless he wishes to raise a point of Order. If he wishes to raise a point of Order, I will hear what his point of Order is. I must also inform the hon. Member that when I am on my feet he is out of order in rising, and if he insists in standing when I am on my feet I shall have to call upon him to withdraw.

Mr. Pemberton-Billing: On a point of Order. I would like to know whether it is in order for the right hon. Gentleman to use this opportunity of adding to the already very regrettable methods adopted by Sir John Boraston and others of casting innuendoes at me for having been able to defeat the two party machines?

Mr. Speaker: The hon. Member will have an opportunity later on, of which he will avail himself, no doubt, as he has done in the past, to making such charges and replies as may seem good to him.

Mr. Tennant: I am a little surprised at the hon. Gentleman's remark as to innuendoes. I made a most plain, straightforward statement, that the hon. Gentleman was lately added to the Members of this House. I do not know on what ground he takes exception to that statement of fact.

[Good Parliamentary play this, but hardly worthy of a serious Parliament in war time. The innuendo seems fairly clear that the said hon. Gentleman would be rendering better service by flying. One might with at least as much reason insinuate that Mr. Tennant would render better service at the butt of a rifle in a trench.]

Before I leave this question of superiority in the air, I would like to say that the Fokker machine which was captured not very long ago was a new machine, and, of course, had been tried by our own airmen. I could give, and will give the hon. Gentleman in

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private, the information which we obtained from our own pilot himself. I have refrained from doing that for obvious reasons, but I will give just two sentences of what our own pilot, who flew the Fokker machine, said:

"The speed of the machine is practically the same as that of an 80 horse-power Morane scout with deflector propeller, but the climb is not nearly so fast. The pilot who flew it to-day reported that the lateral control is not good and that the fore and aft control is distinctly bad."

It is stated that it is a difficult machine on which to teach pupils to fly.

[Two inferences are obvious. Either this Fokker was not of the Immelmann and Böelcke class, or else the machines brought down by Fokkers in January and February were very much worse than most of us thought they were.]

THE NEW BOARD.

No doubt the House is impatient to know what it is we propose to do. It has been arranged that an Air Board shall be constituted on the following lines:

It shall be composed of a president, who shall be a Cabinet Minister, with a naval representative, who shall either be a member of the Board of Admiralty or shall be present at its meetings when matters connected with work of the Air Board are under discussion. There shall be an additional naval representative, who need not always be the same individual. There shall be one military representative, who shall be a member of the Army Council, and an additional military representative, who need not always be the same individual.

There shall also be a member of independent administrative experience, and a Parliamentary representative in the other House from the House in which the president sits.

The Board will be an advisory board in relation to its president. That is, its decisions will not be arrived at by voting.

The Board shall be free to discuss matters of general policy in relation to the air and in particular combined operations of the Naval and Military Air Services, and to make recommendations to the Admiralty and War Office thereon.

The Board shall be free to discuss and make recommendations upon the types of machines required for the Naval and Military Air Services. If either the Admiralty or the War Office decline to act upon the recommendations of the Board, the president shall be free to refer the question to the War Committee.

Sir E. Carson: Will he be bound to refer it?

Mr. Tennant: Presumably he would not. The Board shall be charged with the task of organising and co-ordinating the supply of material and of preventing competition between the two Departments.

Colonel Churchill: Will the Board have executive power?

Mr. Tennant: The Board shall organise a complete system for the interchange of ideas on air problems between the two services, and such related bodies as the (Naval) Board of Inventions and Research, the Inventions Branch of the Ministry of Munitions, the Advisory Committee on Aeronautics, the National Physical Laboratory, and so forth. The Board shall have a secretary to assist in the conduct of the business that comes before it.

Captain Faber: Who will control the money?

Mr. Tennant: They will get all the money they require voted in this House.

Colonel Churchill: I do not know whether my right hon. Friend will answer a question to elucidate the basis. Suppose the Air Board wish to order a thousand machines of a particular type, which the Admiralty or the War Office do not agree to, have they power to do it, or have they not?

Mr. Tennant: If there is the disagreement which my right hon. and gallant Friend suggests, the decision would rest with the War Committee. The War Committee would give their instructions through the Ministry of Munitions, and—

Colonel Churchill: They have not the executive power apart from agreement with the two Departments, apart from the authority of the War Committee?

Mr. Tennant: That is so.

The Prime Minister invited Lord Curzon to accept the presidency of this Board. Lord Curzon has accepted that offer. Lord Sydenham has also accepted the invitation to become a member of this Board, and my hon. Friend the Member for Rugby (Major Baird) will represent the Board in this House.

[The appointment of Lord Sydenham is wholly excellent; of Major Baird one knows nothing.]

I hope that the House will realise that this is a different proposal from that which was suggested by the hon. Member for Brentford in his speech. This is not a method of finding a way out at all. This is a real Board accessible to the War Committee, and consisting of responsible persons, with far greater powers and authority than any body which has hitherto been created to deal with the Air Services.

It will not only have the powers which I have read out, but it will charge itself with larger and wider questions of thinking out the possibility of developing its own body, possibly with a regular Department—under it, such as has been suggested in various quarters of the House—what is called an Air Ministry. It has been thought that during the process of a great war the difficulty and the dislocation and friction involved in setting up an Air

Ministry now would be too great for us to embark on. I hope that the House will realise that this is an important step which has been taken, and will agree with the Government that the best results are to be hoped for from it.

Colonel Churchill: The House will have heard with some feelings of disappointment the announcement of my right hon. Friend of the change which is proposed by the Government. After the many months that this matter has been under discussion, and the repeated postponements in bringing it before the House, we had hoped that a real solution, or a real effort towards a solution, would have been set forth in the Government statement. In the choice of a man, no doubt the Government is well advised. The Air Services have long needed the guidance and the aid of some personality of first-rate eminence versed in public affairs, and with adequate influence in the Cabinet. This they will find in Lord Curzon, but Lord Curzon, without adequate powers, will not succeed in altering the present state of affairs, and in the choice of a policy, judging by the impression made upon me by the statement to which we have just listened, the Government have followed no principle whatever, except the familiar principle of postponing until the last possible moment and then following the line of least resistance.

I have never yet had the opportunity of addressing the House on the subject of air and air policy. It is a matter with which I was at one time much concerned, and for which I am continually criticised, and if I go back into the past a little, craving the indulgence of the House for that purpose, it will be because a knowledge of the past is necessary for a comprehension of the present position and also because I desire to establish my own credentials for offering further counsel to the House upon this question.

First of all, we have never had from the Government a plain statement of how it was that the Admiralty came to be responsible for aerial Home defence.

It is commonly supposed that the Admiralty before the War, at some distant period, more or less distant period before the War, under my impulsion rushed into the business of Home defence, snatched it away from the proper authorities, and then mismanaged and neglected it. That is not the truth. The contrary is the truth. Until a month after the War had begun the sole responsibility for the defence of all vulnerable points in England, by gun fire, seaplanes, or any other method against aerial attack, rested with the War Office. The only exception to this was that at a conference between the heads of the War Office and the Admiralty, on November 19th, 1913, it was agreed that where a vulnerable point was in close proximity to a naval air station the naval aeroplanes would also be available.

But even this position was challenged by the General Staff as late as July 21st, 1914—that is to say, on the very eve of the War, though not that we had any reason to expect an immediate outbreak. At that date a meeting took place of a Committee appointed to regulate the relations of naval and military aeroplane and seaplane bases, and at that meeting the representative of the War Office—the War Office was then in charge of the present Prime Minister—claimed for the War Office the sole responsibility, not only in regard to everything inland, but also in regard to naval ports and vulnerable points of all kinds, even those of exclusively naval interest. Notwithstanding these views, which in principle are quite sound, so far as the integrity of Home defence is concerned, the War Office had not, up to the time of the declaration of war, provided any aeroplanes for Home defence, but limited themselves exclusively, and as a matter of prior urgency, to the development of the Expeditionary Squadron, and, on the outbreak of war, practically all the Army aeroplanes were sent abroad.

I do not say they were wrong in this at all. The dispatch of the squadron for the Expeditionary Army was a matter of vital urgency, but the consequence followed that not only were there no aeroplanes available for guarding all vulnerable points, but none could be found even for the temporary purpose of watching this coast during the passage of the Army to the Continent. The guns which were available then—it is almost laughable, and there is no harm in saying now what was available nearly two years ago, when the whole situation has altered—which were available at the date when the Admiralty took over this duty, I think, were five Service guns and a small number of those quite useless "pom-poms," which have been referred to, with, of course, suitable ammunition for them. That was the state of affairs up to the month after the Declaration of War.

At this point in the argument which I am going to submit it is necessary for me to refer to the extraordinary difficulties before the War of getting money for aerial defence. The Navy and the Army are old and powerful institutions. Behind their demands for money there are organised forces, both in the Press and Parliament, and not only are there organised forces of opinion, but the demands of those two established Services are embodied in the shape of large institutions and establishments which must have full activity, and which must be maintained by Parliament whatever its passing mood may be.

Nevertheless, the Admiralty, in the years before the War, had to fight continually to secure the necessary increase, and the Army was hard put to it even to hold its own. But the air was entirely new, and, apart from a few newspapers, and the praiseworthy

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exertions of a few Members of Parliament, there was no real backing behind any request for money, other than the personal influence of the Ministers at the heads of the fighting Departments. It was always open to anyone to deride aviation as a silly fad, and as another means of draining money from the public purse. Nor was this a sphere in which powerful expert opinion or an accepted body of doctrine were behind the Minister. Soldiers, sailors, and civilian Ministers all started, more or less even, to explore new regions and to endeavour to build up the new arm of the air, and that in less than three years the powerful, efficient, and skilful Air Services with which the Army and Navy began this War were brought into existence was the result of a ceaseless struggle for money and constant personal effort on the part of the Ministers, and devoted and tireless labours on the part of their assistants, General Henderson, Commodore Sueter, and others like Colonel Sykes and Commander Samson in the domain of action. I never had any opportunity of speaking in the House on this subject before, but I am at least entitled on behalf of General Seely to point to the statement which the Under-Secretary for War made on the last occasion in which he spoke in this House when he said that at the beginning of the War we had the supremacy in the air, and indicated that since then this situation had been altered to our disadvantage.

It is pitiful and ludicrous to look back now upon the shifts to which we were put to obtain the necessary money for the air, and it was out of the difficulties of getting the money that the duality originally largely arose. It is always easier for the Navy to get money than the Army. Our estimates were enormous and increasing, and £100,000 more or less escaped the severe scrutiny from which the Army Estimates suffered. Our Estimates passed each year as the result of a trial of strength between great political forces. After each crisis had been surmounted there was always a period of exhaustion in which readjustment of the subjects was possible. And in those days the repair to the naval hospital or the matter of coastguard cottages used very often materialise in a fleet of aeroplanes or some other necessary portion of the Flying Service. Those are the facts before the War.

I began as early as 1912 to develop the Aeroplane Service outside our normal Admiralty sphere, in order to supplement from another set of Votes the inadequate credits which the War Office succeeded in obtaining. Of course we see now the evils of duality, but at that time the object was to get as large as possible an amount of material and number of airmen into existence in the time available.

The naval authorities, although always rather reluctant to add to the ordinary demands of the Navy Estimates, were increasingly anxious about the undefended state of the dockyards and naval vulnerable points, and thus almost clandestinely was built up at the Admiralty an Aeroplane Service of our own which, when the War broke out, so suddenly and so unexpectedly, had already attained respectable dimensions. It was well that we did so. At the outbreak of the War the whole of the War Office went off to the War, taking the whole of their aeroplanes with them, and nothing remained in this country but the Naval Air Service.

[One hopes that this straightforward and honest exposition of facts will silence some of Colonel Churchill's critics.]

A month after the War had begun—September 3rd, I think, was the actual date—Lord Kitchener asked me whether the Admiralty would undertake the general duty of Home defence against aerial attack. He pointed out that all his efforts were concentrated on the equipment and maintenance of the Expeditionary squadrons, and that he had practically no resources in guns or aeroplanes for Home defence. The Admiralty, on the other hand, had a considerable supply, with which, in fact, though without formal authority, we were already guarding the vulnerable points of special interest to the Navy. Under the circumstances, I thought it my duty to comply. I therefore drew up a printed memorandum, in which I set out the total resources we could spare without prejudice to the paramount needs of the Fleet. I pointed out that those resources were wholly inadequate and unsuitable, but I undertook to do the best we could with them, and to take the necessary steps to increase them as soon as possible. I carefully stated that the Admiralty could not be responsible for Home defence, but could only be responsible for doing the best possible with the material available. On this basis, which was formally accepted by the Government, the Admiralty undertook, very reluctantly for the most part, the thankless—and as it seemed then almost hopeless—task, for the time being.

Our available guns and aeroplanes were forthwith disposed to what we considered the best possible advantage, and overseas air bases in France and Flanders were established, and those have proved an effective and almost absolute parry to the attack of German Army Zeppelins coming from Belgium and the Rhine. The series of offensive enterprises against the Zeppelin sheds began, and on this quest, in spite of their slender resources, the naval arm went to Düsseldorf, to Cologne, and Friedrichshafen, on Lake Constance, and even to Cuxhaven, in the North Sea. Six Zeppelins, it is believed, were destroyed either in the air or in their sheds by a handful of naval pilots acting, what the First Lord of the Admiralty would now call "outside their normal sphere." It would be hard to show that all allied airmen and pilots had during all the war succeeded by this method in destroy-

ing so many. Moreover, within a few weeks of the Admiralty becoming responsible very large orders were placed for aerial guns and the proper kind of ammunition, and searchlights, and immense orders were distributed for aeroplanes to the utmost productive limit of every aircraft factory in any part of the world not already occupied with Army work. None of those orders matured during my tenure of office, but they all must have come to hand many months ago.

[It was, in fact, only after Col. Churchill left that things began to go wrong with the R.N.A.S., owing chiefly to the machines then on order being tampered with by scientific "experts."]

My hon. Friend the Member for Brentford (Mr. Joynson-Hicks) has twitted me this afternoon with my phrase about "hornets." I am very glad to come to the "hornets." The main defence of England against Zeppelins has consisted since the war began in that formidable "swarm of hornets" of which I spoke in 1913—that is to say, aeroplanes with skilful pilots held ready with bombs and guns to attack any Zeppelin which approaches our shores. This defence has been effective, up to date, in preventing any attack by Zeppelins coming here by daylight, or even by moonlight. Thus, for the whole of every day and for a large proportion of the hours of darkness complete protection has hitherto been afforded.

It was hoped that even in the dark nights the aeroplanes would be able to act effectively against Zeppelins. This hope has not been realised, not because aeroplanes cannot fly at night, not because the aeroplane is not fully a match for the Zeppelin once the encounter is joined, not because properly lighted landing grounds cannot be arranged, but because it has proved very difficult indeed, and almost impossible, to find the Zeppelin in the dark.

[This difficulty can also be overcome, and has been.]

But apart from this, and this is a very important exception, apart from this exception the conclusions which I stated to Parliament, in a perhaps dangerously picturesque form, have been justified.

Twenty-five or thirty days, during the whole of these twenty-two months of war, Zeppelins have raided our shores, and it is to the presence of aeroplanes, at the outset entirely provided by the Naval Wing, in the absence of Army machines abroad, that the immunity from Zeppelin attack which Britain has enjoyed on the other 600 days and nights is almost exclusively due. But for the aeroplane service we had created before the war there would have been nothing to stop Zeppelins from raiding us every fine day; and if they were able to come in daylight they would be able to find their way with certainty to the vital and vulnerable military points. Our aeroplane defence has restricted Zeppelin attacks to a few nights in certain months, and even then those attacks can only be delivered erring and almost blindfold. The proof of the triumph of the aeroplane is that after twenty-two months of war no object of any military or naval importance among the thousands which exist scattered broadcast throughout the country has yet been struck by any Zeppelin bomb.

[This should be enough for those who have scoffed at the "hornets." And it may be remembered that this paper has pointed out this very argument.]

The second defensive method against Zeppelins is the fire of guns. Within its restricted area, and to a limited degree, this method also has proved effective. But the fire of guns cannot be generally available. [But a hedge of 100 or 150 good guns along the East Coast could do much.]

I wish to refer for a few moments to the question of British construction. Before the War the policy of the Admiralty was to build airships, both rigid and non-rigid, only for training and experimental purposes. But we did not attempt to rival Germany in this sphere. On the contrary, we looked to the aeroplanes and the seaplanes operating from the shore or from ships to afford us our old characteristic effective counter-measure. In war, if you are not able to beat your enemy at his own game, it is nearly always better to adopt some striking variant. That was the policy deliberately adopted in 1911 and in 1912 and consistently adhered to by the Admiralty; and in my judgment, as far as I can see at present, the teaching of nearly two years of war has not proved that view in the main to be unsound.

It was decided, I think in January, 1914, in the interests alike of economy and of efficiency, that the Airship Service should be unified, and be a purely Naval Service. The Army airships, with their appurtenances, were handed over to the Admiralty on the understanding that whatever airships were required in future for the Army for military purposes, for Home defence for which the Army is responsible, or for the Expeditionary Force, should, on the demand of the War Office, be built and maintained by the Navy and held ready for Army use.

No responsible officer at the War Office or at the Admiralty whom I ever met before the War anticipated that Zeppelins would be used to drop bombs indiscriminately on undefended towns and the countryside. This was not because of any extravagant belief in human virtue in general, or in German virtue in particular, but because it is reasonable to assume that your enemy will be governed by good sense and by a lively regard for his own interests. What more mischievous policy to her own interests could

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ERNEST B. H. LANDER. 1915.

Germany pursue than to infuriate large populations against her without being able to injure their war-making capacity?

But even if the military authorities had known beforehand that this form of attack was going to be made by German Zeppelins, it is not clear to me what preparation they could have made which would have guaranteed absolute immunity to the general public. A fleet of British Zeppelins, for instance, would be no such guarantee. The area open to attack is so large and so various that the assailant would always be able to arrive at the selected point in superior force. The defensive airships, on the other hand, would have a very different task, namely, to concentrate on any point in superior force, and then to find, catch, and bring to battle a few dark shapes swiftly moving through clouds and mist, with a free choice of direction and altitude.

But who is to pretend that it was in our power, even if we had begun, say, in 1912, to create a Zeppelin fleet approaching in quality or numbers the German Zeppelin fleet—the product of ten years' expense and experiment on the most lavish scale. Why, Sir, even if any Government had entertained the project—and no Government I have ever seen would have done—even if any Parliament had voted the funds necessary, we could not have hoped to compete with Germany successfully in rigid airships in the time available. We had not the art, we have not the native stores of aluminium which would be accessible in time of war. Our attempts to build experimental machines have been balked until some months after the beginning of the war by continuous delay and disappointment. Nearly 100 aeroplanes and their sheds can be obtained for the price of one Zeppelin and its shed. What folly it would have been for us to have squandered the hard-won, grudging, and exiguous money which had to be secured for air defence on Zeppelins, fewer in number, inferior in type, and certainly ineffective for the purpose in hand. [All of which has been said, if with much less brilliance, in this paper for months past.]

Suppose by the stroke of a wand we could step back with full knowledge to the year 1912, and suppose that the £8,000,000 or £10,000,000 necessary to establish a good Zeppelin fleet were placed at our disposal as an addition to the ordinary Estimates which were, in fact, voted. Should we be wise to build one? With £10,000,000 you could have had sixty or seventy submarines; you could have had fifty destroyers; you could have had another twenty-five light cruisers; you could have had an Aeroplane Service of absolutely overwhelming strength; you could have had 2,000,000 rifles, which would, perhaps, have meant 3,000,000 more men in the field during the great struggle of last autumn; you could have had 1,000 heavy guns, which, applied in the earlier stages of the War, might have ruptured the German lines in France. Is it not clear that, even if we are going to use the light of our present knowledge on the decisions which should have been taken before the War, a great many other competing things would have had to be considered before we came to the question of spending £10,000,000 on Zeppelins? Are we quite sure, after twenty-two months of war, that the Germans themselves might not have made a more formidable investment of the large sums of money which they have spent on their Zeppelins?

The true remedy—and the House will pardon me if I give my views upon the subject, because I have been in this business from the very beginning—the true remedy and the only radical cure for Zeppelin raids is either to attack the German Zeppelins in their sheds with aeroplanes, or to station squadrons of aeroplanes at some point, or points, overseas where they can intercept the German Zeppelins during daylight, either going or returning.

As to the first remedy, an attack on Zeppelin sheds, I can only repeat what I said three months ago—why has it been discontinued? Why, after a whole year of limitless money, of accumulated experience, and of multiplying resources, has it not been possible to continue this system of attack upon the enemy's air bases? Why has it not been possible to construct the special types of machines that may be required for each particular objective? In my opinion the reason is that this subject has not in the last year been studied from a commanding point of view by anyone who was able to give his whole time and attention to it. [The real reason is lack of competent handling of the problems of construction.]

All the more condemnation to you, I say, for losing so much valuable time, and perhaps for letting such precious opportunities slip by!

But there are two other forms of Zeppelin activity which must be considered. They are purely naval in their character.

First of all, there is the unrivalled power of the Zeppelins for long reconnaissances at sea. But I urge the representative of the Admiralty present not to delay on that account [the building of British airships] the energetic development on a great scale of seaplanes, and especially aeroplanes, operating from ships specially adapted or from existing war ships. If you have developed the use of the fast aeroplane at sea, the launching of these from the decks of warships, and the picking up of them afterwards by other vessels, then it will be possible to drive away all Zeppelins from the neighbourhood of our Fleets which are in movement or action, and to destroy any that attempt to approach them.

I venture to bring these general conclusions and suggestions to the notice of the House because I have noticed that controversy in these matters proceeds so frequently on wrong lines and at

cross-purposes. Take, for instance, the case of the Committee which has been appointed to examine into the charges of the hon. Member for East Herts (Mr. Pemberton-Billing). The Member for East Herts makes a speech in this House, and in it he used the word "murder." Well, Sir, that is not a charge of murder! "Murder" is an expression which is frequently used by Members of Parliament when they are angry. To take up the time of a judge of the High Court and a number of important persons in setting up a Committee to try to score off a private Member of Parliament whose activities—[Interruption]—at any rate, that is the reason which the Under-Secretary gave.

As a matter of fact, the hon. Gentleman, so far as I can gather, was leading the Government to suppose that what was needed was an increase in the factor of safety in the machines. I have met many persons of great competence on this subject who think that one of the mistakes we made at the beginning of the war was in not immediately reducing the factor of safety. You may make a perfectly safe machine which the enemy can certainly hunt down and out-manœuvre. Peace-time risks in aviation naturally tended to the reinforcement to the factors of safety, because people were shocked at the accidents which took place. When the war began other dangers far more terrible than the incidence of ordinary breaking strain and the occurrence of accidents supervened. I have heard that there is a great deal to be said for action in the direction of the relaxation of the factors of safety in constructing machines, in order to get speed and climbing power which will save the life of the pilot in a hard fight. I only say that to illustrate that we are very much at cross-purposes in these matters. [Mr. Churchill is right and yet wrong. Mr. Pemberton-Billing wanted a higher factor of safety in reliability, speed, and climb, not in mere mechanical strength.]

Shortly after I left the Admiralty the resolve was to navalise the Naval Wing of the Air Service. It was to be navalised from top to bottom, although it was almost entirely staffed by young civilian pilots. In the pursuit of this general policy of navalisation, the speedometers in the machines, which were in miles, were all converted into knots. The result over in France and Flanders was that you had the speedometers in knots, while the maps which the men were using were in miles or kilometres. The naval pilot, with perhaps a Fokker machine in the air above him and bursting shells below him, had to go through a careful, elaborate, and difficult calculation to convert the miles into knots, or *vice versa*, to verify his position. That is a typical instance of petty friction arising from the undue particularism which we had hoped the Government would make proposals finally to remedy.

The second and much more serious was the lack of any commanding initiative and design and overriding authority in affairs of the air. Neither of these difficulties will be remedied by the proposals which have now been made by the Under-Secretary, so far as I understand them. There is, I gather, to be a Joint Board, and the members of this Board may advise the president, but he need not take their advice, and the president may advise the Admiralty and the War Office, but they need not take his advice. If it should be unadvised advice they are very unlikely to take it, because they would have had their own representative, a member of the Army Council or the Board of Admiralty, on the new Board, and if he has dissented from the advice offered by the president, he will, of course, have every opportunity, being first in the field, of converting the Department's council or board to the views which he holds.

Then we are told that the Board is very like the rest of us—like the hon. Member for East Herts—free "to discuss matters of general policy in relation to the air," and to interchange ideas. And if their advice, suggestions, recommendations, etc., bear no fruit with the two fighting Departments, who, after all, are busy carrying on the war, and apt to give rough answers on these matters, then the president, I understand, may complain to the War Council—

The Secretary of State for the Colonies (Mr. Bonar Law): May offer advice.

Colonel Churchill: May refer to the War Office, of which he is not a permanent member, though the two Ministers with whom he may be in difference are permanent members, and these two will, of course, on a difference arising, be supported by the whole massed weight of their two respective Departments, headed, no doubt, by the member of the Air Board representative of each Department. That does not seem to me to amount to very much of a forward step.

I know the public Departments, and especially the military Departments, of this country well, and I know what their attitude is towards a body which has the opportunity to inquire, to criticise, to offer advice, and to make complaints; but which has not the right to their allegiance and the power to exact obedience to orders. Either the arrangements now proposed will lead to nothing effective, which will be the case if Lord Curzon shows the great qualities of tact which are likely to be required of the holder of the new office which is created, or I say quite frankly—they seem to me likely to lead to a first-class row.

If he is going to make his work a reality, it is perfectly clear there will be very great differences, and much friction—the friction which you have been unable to overcome yourselves in making these proposals—will be created. In both cases, whether they

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produce no result, or whether they lead to trouble, they will lead to delay in arriving at a proper organisation for the air, and a wholehearted policy.

Can anyone feel that the proposals are put forward by the Government in the sincere belief that they will really open the way for the conquest of aerial supremacy for this country? Yet I cannot think it difficult. No doubt we shall hear from the Government of the difficulties that stand in the way of an Air Ministry, of the resistance of this and that highly placed official, and the prejudices of the Departments. No doubt we shall be told of the practical difficulties of calling it into existence in the middle of a great war, as if far greater difficulties have not been overcome, and far greater prejudices worn down, in the creation of a Munitions Department.

I cannot think it difficult myself either to devise or to bring into operation a unified organisation, or to divide on natural and well-marked lines the services of training and supply on the one hand, from the tactical employment of units afloat and in the field on the other hand. I proposed to the Prime Minister a scheme on those lines nearly a year ago. I agree that a complete amalgamation may not be possible at a single stroke, but the formation of an Air Department with real responsibility and real powers is an urgent and indispensable preliminary. No one can doubt that ultimately—and the sooner the better—the Air Service should be one unified, permanent branch of Imperial defence, composed exclusively of men who will not think of themselves as soldiers, sailors, or civilians, but as airmen, as servants of the new arm, as servants of an arm which, possibly, at no distant date may be the dominating arm of war.

Complete, unquestionable supremacy in the air would give an overwhelming advantage to the artillery of the Armies that enjoyed it. It would confer the greatest benefits upon the Fleet that enjoyed it. You have not got, in spite of what the right hon. Gentleman has said, that complete supremacy now. You have not even got equality. On the contrary, in many respects the Germans have the advantage, and you have lost the superiority which, at the outbreak of war, it was admitted we possessed. [Remember, Mr. Churchill knows more about aviation than anyone of Cabinet rank, or anywhere near it, and that he is just back from the front.]

Nothing stands in the way of our obtaining the aerial supremacy in the War but ourselves. There is no reason, and there can be no excuse, for failure to obtain that aerial supremacy, which is, perhaps, the most obvious and the most practical step towards a victorious issue from the increasing dangers of the War.

Lord Hugh Cecil: I do not propose to follow my right hon. Friend the Member for Dundee (Colonel Churchill) over the extremely interesting part of his speech which dealt with the defence of the country against Zeppelins. The only single observation I may add to what he has said is that, I believe, I express the better opinion among flying officers when I say that an aeroplane at night is of less value even than my right hon. Friend represented. He said, and of course with perfect truth, that you can make a landing ground on which it would be possible to descend, but, if you send up aeroplanes at night, the air is so large that the aeroplane may very rapidly pass out of sight of the landing ground, and find itself hopelessly lost, and may be obliged to descend in total darkness, with the certainty of smashing the machine, and with the probability of serious accident to the aviator. Therefore, I really believe it is unwise to use aeroplanes at night for defence against Zeppelins. There is the additional difficulty that, if you have landing grounds lit up, you must have them more or less near towns, where you do not want Zeppelins to drop bombs. The landing-place, of course, is abundantly visible to the Zeppelin, and is very likely to draw just that amount of attention which may lead the Zeppelin to drop bombs on the neighbourhood, and bombs on the very ground you are anxious to defend. Something like that has happened quite recently. [Which shows Lord Hugh's astonishing ignorance, for an R.F.C. officer, of all the simplest problems of night flying.]

But I was anxious rather to deal with the position as it stands at the front in Flanders, and of the respective powers of the German and British Flying Services.

I confess I think the hon. Member for Brentford makes a mistake in relying to the degree he does on statements made by officers at the front. [Certainly, if they are like Lord Hugh's views on night flying.]

My hon. Friend quoted a very interesting story from a flying officer. Flying officers have abundant knowledge, but they are usually, though not invariably, young men, and they have, of course, the defects of young men. The hon. Member for Brentford quoted the case of a flight commander in the Royal Flying Corps as saying that the Germans had the superiority. I should have asked that officer, "Does that mean that the Germans can do a lot of things that we cannot do?" and I think he would have said "No." Then I would have gone on to ask, "Does it mean that we cannot do anything the Germans do not do?" and he would have replied that we do long reconnaissances. Unless things have changed very much within the last month we carry out habitually long reconnaissances that the Germans never attempt at all. I was for three months twenty-five miles behind the British lines, and I never saw a German aeroplane at all, except one that

was captured and brought in. If I had been twenty-five miles behind the German lines I should have seen an abundance of British aeroplanes flying. [What about German aeroplanes 100 miles behind the Russian lines? Could B.E.2cs, with R.A.F. engines, be trusted for such a journey?]

The hon. Member spoke of the command of the air, and he went on to explain that by command of the air he meant the same sort of command as we have of the sea. There is, however, this fundamental distinction. The air has three dimensions and the sea has only two. In so far as the sea has ceased to be a matter of two dimensions, we have ceased to have complete mastery of the sea. We now have a submarine which goes down into the third dimension, and we cannot prevent German submarines going where we would rather not have them. Just the same this is true of the tactics of flying. [An entirely false analogy. The only reason we cannot command the submarine is that it cannot be seen. The aeroplane is visible, and therefore can be stopped by superior forces of its own kind, exactly as in the case of surface ships.] The Germans advertise their brilliant officers much more than we do, but we have plenty of officers who do achievements quite as good as those quoted so much on behalf of the Germans. [And, on the whole, on less reliable aeroplanes, so the more credit to our aviators.] Apart from those two or three very brilliant German officers I am sure our flying officers would be ready to say that they are more afraid of the anti-aircraft guns than the fast machines of the Germans.

It has been stated that the Germans have the fastest machines, but I have heard confident statements in the opposite direction. Nevertheless, I venture to caution those who are unfamiliar with the subject against believing too readily any statement about the speed of an aeroplane, because that is an exceedingly difficult thing to ascertain. If you could have an aeroplane flying over a measured mile at a short distance above the ground, and time it with accurate stop watches, you might be able to form a fair estimate of its speed [and if it were over-engineed you would get a slower speed than its speed when at its critical height, which Lord Hugh has forgotten], but if all you have to rely upon, and that is generally the case in war, is the impression produced on the mind of another pilot flying in the same neighbourhood as to the relative speed of the two machines, it is evidently an extremely hazardous source of information as to the speed of the machine. [If a pilot is overtaken and attacked he knows it, and that is the best test of all.]

It must always be recognised that in a large number of cases you are relying upon the hasty impression of the pilot who comes back saying that the aeroplane he has taken a fancy to is very much better than the Germans produce; or, on the other hand, he may get the impression that everything is going to the dogs, or at another time he may say that there never was such a machine as the one he has been flying in. No doubt it was the case that in the last month of last year the Germans had one or two very fast machines. There was such a consensus of opinion upon this point that no one would deny it, but when you have said that you do not necessarily convey a very serious degree of censure upon the War Office or whoever is responsible for providing machines for the Royal Flying Corps. [It does when one recalls that far better machines had been offered to the Government and had been refused months before, and that the French had ordered these machines.]

The hon. Member said that we were still using the same kind of aeroplanes as we were using at the beginning of the War, but he is quite mistaken about that.

Mr. Joynson-Hicks: I was referring to the speed of the machines used principally for reconnaissance purposes, which still have the same engine and the same horse-power, and they go 75 miles an hour. [With luck.]

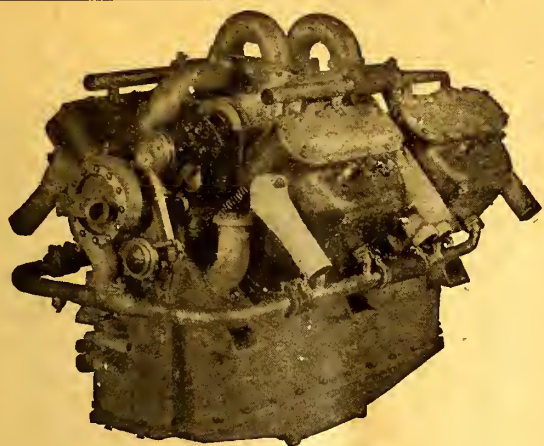
Lord Hugh Cecil: I know the machine the hon. Member means, but three months ago, at any rate, it had a more powerful engine, and it may have a still more powerful engine now, and I know it has been more urgently sought for.

I dislike speaking about myself, but when I first went to Netheravon as a pupil, on January 1st, 1915, there were a number of machines there. They were the fashionable machines of the hour, used by our brilliant young officers there. Not one of those machines was in use when I went out to France in September of that year. [Merely similar machines with a somewhat bigger engine.]

It is extremely difficult, when a science is making progress at that tremendous rate of speed and making improvement, to judge at what point you ought to put in your large order. [That is exactly the point which calls for exceptional judgment, and as humanity is so fallible it should be decided by a very simple rule.]

People always say you can apologise for anything, but the broad fact remains that in the second stage of the War you were caught napping, and the Germans made progress quicker than you did. [That, at any rate, is a handsome admission for a Government apologist, but it is only true of the R.A.F. and not of the mere "Trade."]

I think they did that in the second stage of the War. That was not on account of indifference or negligence, because it was always a matter of the most keen anxiety to get the fastest machine and the best engine and develop it as rapidly as possible



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All the resources of France were put under contribution for this purpose, and we even went as far as Spain and Italy seeking improvements in aeroplanes and engines. We also went to America, and machines were brought over to try in this country.

It would be the most extraordinary injustice to those in control of the Flying Corps to suppose that they were unaware of the difficulties arising through the German improvement, or to say that during the last six months of last year they were not making the most strenuous efforts to meet those conditions.

It is not satisfactory to rely only upon the experience gained at our training centres, and you have to test all new apparatus on the field of action itself. I think the officers in high command of the Flying Corps deserve signal praise for this, that they have given the best possible opportunities to all officers in the Flying Corps to suggest and develop improvements in France, and try the various improvements in armament and the like. In this respect, I am glad to say, there has been a total absence of an atmosphere of red-tape. [An opinion which one can endorse heartily. The active-service commanders have been surprisingly quick to catch onto new ideas and push them along.]

We hear a great deal about fast engines and things in regard to which the Germans are said to excel, but we do not hear anything about the things in which we have the superiority. I do not think I am committing any breach of confidence in saying that our photography is better than the Germans. [What about German lenses?]

Then, again, in the matter of machine guns we have a decided superiority. I am speaking of what I have heard officers say and what I have heard foreign officers say as well, when I say that the Lewis machine gun is admired all over Europe, and that our Allies join with us in thinking that it is the best machine gun for that type of work in Europe. [An excellent gun, invented by an American and first made in Belgium.] We ought to hear these things, and then we can balance them against the things in regard to which it is said the Germans are superior.

We have heard, not perhaps so much to-day, but on previous occasions much of the unhappy accidents that sometimes take place. Of course, it is almost impossible to show what is the exact cause of the accident, because it takes place hundreds and sometimes thousands of feet up. No one can quite tell what exactly was the cause of the accident, but the common cause alleged is that either some mistake was made by the aviator, in which case, of course, no one is to blame except the man himself, or that there was some failure in the engine. The hon. Member for East Herts (Mr. Pemberton-Billing) produced a very large number of accidents. I went through the report of his speech, and as far as I have been able to examine them almost all of those that resulted from any defect in the machine were cases of engine failure. [Which is precisely the kind of failure which should never occur.]

No one, of course, likes to reflect upon the aviator and point out to his relatives that, however sad the accident may be, it is mainly his own fault, and the relatives not unnaturally get the impression that it is due to defective apparatus. The real honest truth is that it is due to a mistake such as anyone might make and the apparatus in the ordinary sense is as trustworthy as it can be made. If it be not trustworthy, the officer immediately in command, and not the War Office, is to blame for sending up the aviator with an engine dangerously defective.

The blame, on the other hand, may lie with the aeroplane mechanic who reports the aeroplane fit for flying when it is unfit. But in no case can I possibly imagine that any responsibility lies with the central authority at the War Office, or whatever person is directly responsible to this House. It is evidently outside their responsibility altogether. [May one ask who orders engines which are still in the process of development, and which blow off cylinders or break valves over enemy country?]

The conception that there is indifference to human life and indifference to accidents among the higher officers of the Flying Corps is a mistake so flagrant that if the subject were not so serious it would be a ludicrous mistake. There really is no truth in the suggestion that gallant lives of officers of the Flying Corps are sacrificed to anything except the necessities of the War. [No one ever made such a suggestion. What one complains of are perfectly honest but none the less grievous errors of judgment in selecting matériel.]

I say with confidence that there is no Flying Corps in Europe, or in the world, therefore, that does more than our Flying Corps. You may say, and no doubt it is true, that it is largely due to the gallantry of the pilots. Nothing, I think, in the world is more stimulating than to turn up the tales of the aerial combats as they come in. They are just simple narratives of the facts of these combats in the air, but they have a degree of individual interest which has been wanting from warfare for six or seven hundred years. You have the thing as much a combat between two individuals as it used to be in the days of knights of old.

I am persuaded, therefore, that the question you should ask fairly is simply this: Do we do more than the Germans? The answer is, Yes, we do. Is there anything the Germans can do we cannot do? There is nothing the Germans can do that we cannot. That is sufficient, I think, for such an assembly as this to justify the verdict, not that there is no occasion for improve-

ment, not that there is no opportunity for criticism, but it is sufficient to justify the verdict that, taking all considerations into view, our Royal Flying Corps is the best and most efficient in the world. [Which is precisely what this paper has said over and over again, and that is the chief reason why the question of matériel should be all the better handled.]

Mr. Bonar Law: The Prime Minister has asked me, as a member of the War Council, which is responsible for the decisions the Government have come to in this matter, to take part in this Debate this afternoon.

In judging as to the quality of our Air Service, it all depends on the standard you set up. If what anyone has in his mind is the best possible service under the best possible conditions we could have, then obviously our service leaves a great deal to be desired. But if the standard is a comparison either with our enemy or with any of our Allies, then I am prepared to say, as my Noble Friend said just now, that our service is unquestionably far better than that of the enemy, and, as I believe, equal—I should say it is more than equal—to that of any of the combatants engaged in the War. [Does Mr. Bonar Law mean seriously that the R.F.C. was or is so superior to a service which covers the whole French front and Russia, and Italy, and the Balkans, and Turkey as well? One hopes it may be in time, but the time is not yet.]

But at the end of last year, or the beginning of this year, our aviators, for the first time—they had hitherto made reconnaissances with comparative impunity, hardly ever being attacked—suddenly found that these Fokker machines were waiting for them, and we had heavy casualties. It is perfectly true that the men who were doing reconnaissance work were on inferior machines to the best German machines. But they had never been accustomed to being attacked, and although it is not the intention of those who direct the Air Service that men on that kind of machine should fight, being armed only to protect themselves, yet you could not prevent them fighting. They tucked up their wireless, and went for the enemy wherever they found him. The result was that we had a considerable number of casualties. [This entrancing picture is not notably accurate.]

But there never was a time in this War when the Germans had a machine which was better than any of our machines, and when they had not a machine which was not worse than the worst of ours. [Had they ever anything worse than the B.E.8?]

The truth is our aeroplanes crossed the German lines oftener than they crossed ours. I have had to get some evidence which goes to prove it, and I have had taken out a return of all those combats of which my Noble Friend spoke so eloquently just now, which took place between July 7th and April 14th. In this period of these contests there were 478, and of these sixty-three only took place on the British side of the line. In them thirteen German machines were brought down and not a single British machine at all. Of course we lost in fights on the other side of the line and over the trenches a large number of machines and men. But we do not know what the enemy lost.

The next charge made against ourselves was in connection with the machines. It is obvious to anyone if you compare one type of machine with an entirely different type it is easy to make out a case that we are entirely outclassed. This reconnaissance work is done with a slower machine, and in any case, even if you had fast machines, the fact that they have wireless and photographic apparatus makes it a necessity that they must be slower than the machines which are doing nothing but fighting. [Why?]

I should like further to say this—it would be well if the House could realise to what extent this service has grown. Now we are turning out every month a larger number of trained pilots than the total number that was available from every source when War broke out on August 4th, 1914. [When war broke out we had about 50 pilots trained for war, if as many, so Mr. Bonar Law is well inside the safety mark.]

That is all I wish to say on that subject. I have rather a difficulty in saying it, because it seems to imply that if you defend a force in this way you are perfectly satisfied. That does not follow. All that I wish the House to realise is that the impression which has been sedulously created, that the Service has been muddled throughout, is entirely wrong, and that if you wish to find mistakes and errors in connection with the carrying on of the War, I am certain that it is not in the Air Service that the greatest number of these mistakes will be found. [No one suggested for a moment that they would.]

I come to the main object of the remarks I am making to-day, that is, the proposal the Government has put before the House. In considering what should be done we had three alternatives only before us. One was, without changing the two Services, to do our best to develop them on their present lines. The second was to appoint a fully fledged Air Minister; and the third was seeing that there is a joint Service, to try to get it used jointly by means of a joint board which would get the best out of both. There was a good deal to be said, in the middle of the War, for adopting the first course and trying to develop more rapidly on the present lines.

In this connection what has happened in France should be very instructive to us. It is not encouraging. Before the War, in

THE DEVELOPMENT of THE AEROPLANE

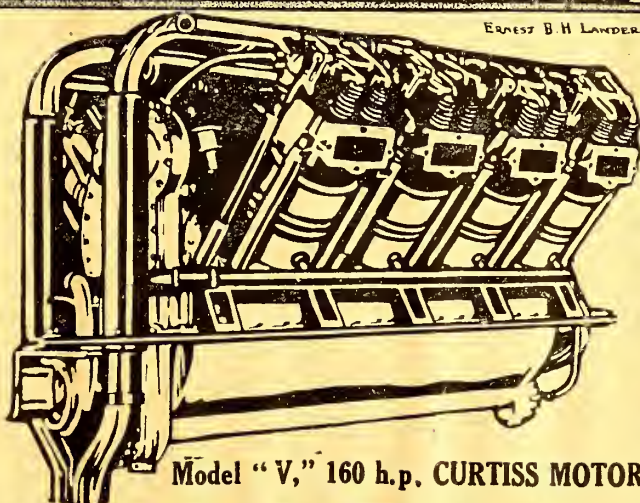
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France the Air Service was entirely in the hands of the War Office; it was in the hands of one man, well known in connection with this subject, Colonel—now General—Hirschauer. A year before the war a very strong agitation took place in the French Press, a large part of which was due to the dissatisfaction felt with him by the makers of aeroplanes. Owing to that agitation he had to give up his work. When the War broke out, he was called back and again took over his old duties. That went on until September of last year.

Again an agitation was raised against him—it was precisely of the same kind we now have about the air muddle and all the rest of it—and the agitation always became the most effective when there were Zeppelin raids. The agitation was made against him, and he was driven out of his post once more. Now the French Press, at least part of it, has had its way. They appointed a full-blown Air Minister, who was, as it happens, an able man, M. Besnard. [Opinions were very varied.] He appointed a committee, consisting entirely of men who were experts. That lasted for exactly five months. Another Zeppelin raid came, and the attack began all over again. The Air Minister has been turned out, and they have reverted to precisely the same position in which they were at the beginning of the War. That is not an encouraging example. [But another and very able officer is now the moving spirit of the French Service.]

We rejected the proposal of leaving it as it is. The next question is that of an Air Ministry. My right hon. and gallant Friend (Colonel Churchill) said that we, the Government alone, were standing in the way. When my right hon. and gallant Friend was at the Admiralty there was a joint Air Committee, and the two branches of the Air Services had but one name—the Royal Flying Corps, with a naval and military wing. When the War broke out my right hon. and gallant Friend did, what probably on the whole he was justified in doing. He had one Department in his own hands, and he showed great energy in developing it in the best possible and the most practicable way. But instead of saying then that an Air Ministry with these two services was the right solution, he, for the first time, gave a new special name to the naval wing of the Royal Flying Corps, and, instead of making it a joint service, so far as his own action was concerned, it was to separate the two services more than ever they had been separated before.

Colonel Churchill: I have not refreshed my memory, but I think the Royal Naval Air Service was a name started before the War. [The name "Naval Air Service" came into use a year or so before the war, and the "Royal Naval Air Service" came into being by Royal Warrant on July 1st, 1914—a month before the war.]

Mr. Bonar Law: I have not looked it up either, but I think I am right. [He was quite wrong.] The idea of those who advocate an Air Ministry so freely is that there is an analogy with the Ministry of Munitions. There is nothing of the kind. The Ministry of Munitions had difficulties enough to contend with, and I do not think they would have been overcome without great energy on the part of those who were carrying out those duties. But that was a simple problem compared with this. It was taking away from the War Office one branch of War Office work. The business of the Ministry of Munitions is to supply material. It has not to use that material, and it has not to direct the policy and the way in which that material is used.

Remember this! At this moment and for a long time to come, however rapidly you develop the Air Service, the great bulk of the work in the air will be done in connection either with the Navy or with the Army.

Here you have two services dealing largely with the same materials, and, to some extent, in the same way. It is not the obviously right course to try to get these partners to work together, to use every possible force to compel them to work together, and so far as I am concerned, even if I believed that an Air Ministry was the right thing in the end—I think an Air Ministry may come out of it—I should say the right way to get it is to make some arrangement of this kind, to let it grow and to gradually let it absorb more and more the work of the Air Services.

Let me deal with the kind of criticism the right hon. and gallant Gentleman (Colonel Churchill) made against the Board. I really thought it was not worth while. The substance of it was that there will not be voting at this Council, and he thinks that is a wonderful thing. That is the system on which every one of the Government Departments in this country is carried on now. It is the head of the Department which represents the view of the Department. The idea that the president will take one view and both the services will take a different view is an absurdity. What will happen very likely is that one service will take one view and the other another and he will overrule them. The object of not having a vote is, if possible, not to crystallise the hostility of the two services. [There is some sense in that. Mr. Bonar Law then delivered himself of much very uninteresting argument and continued.—]

Another great object in my mind in getting this arrangement made is this. It is perfectly true that not only imagination but a keen interest in a subject like this is required to develop it in the best and most rapid way. I have thought from the beginning,

though I did not see exactly how the matter was to be met, that in the nature of the case neither the First Lord of the Admiralty nor the Secretary of State for War can possibly devote their minds to a subject like this in a way in which it could be done by a man who had no other large duty to discharge. We have got in this arrangement a man whose duty it is to do it, and I think the best answer really to the criticism that the Board will have no power is that the man who has accepted the presidency of the Board has done it with the belief that he can do good work in it, and no member of the Cabinet or anyone of my acquaintance would have been less likely to undertake a position of such great responsibility if he thought he had not the power necessary to enable him to make a success of it.

It would be far better financially if the Air Ministry had a spending department of its own. But, as a matter of fact, if they agree on anything they are going to carry out there is not the smallest difficulty in getting orders placed by the other Departments and the financial arrangements made. [Heaven help the contracts departments under this scheme.]

It would not, I think, be proper for me to say anything in praise of Lord Curzon, who has accepted the presidency of this Board, but I ask the House what are the qualities they would like to see in a man in that position? Certainly I should like to see a knowledge of the subject, but I do not think I would put that first. If you could get a man with other qualities, who was also an expert, it would be the best arrangement, though I know that is not agreed to by everyone, for our whole political system rests on the assumption that the man at the head of every Department must be an amateur in connection with it. [Can anyone doubt it who knows how the country is run?] I do not say that a better system is possible, but I do not go the length of believing that if you have a man of equal administrative capacity, equal ability, and not an amateur, that would be a better man than a man with the same qualities who does not know the subject. It may be said this is a Board of amateurs. So it is. But the very first thing Lord Curzon will do will be to make use of the best expert advice he can get, and in the best way he can utilise it. He has already spoken to me about methods he proposes to adopt to make use of it, but I will say nothing about that. What, apart from expert knowledge, are the qualities needed? I think the ones I would put first are brains, driving force, administrative capacity, and administrative experience. I think these are the qualities which will be most useful, and the result of this Board will be that this service will be treated as something by itself, as something to be fostered by itself and to be pushed forward with the utmost rapidity. Another quality is personality. There are different degrees of influence even in the Cabinet—I am sure I am not coming under the Defence of the Realm Regulations—and therefore it is essential that a man should have a certain amount of personality. I do not think there is anyone who knows Lord Curzon who will deny that he has a fair share of all the qualifications I have put before the House.

Mr. Pemberton-Billing: I regret exceedingly that this Debate has touched on personal matters. It was not my intention to refer to them in any way whatsoever; but the right hon. Gentleman (Mr. Tennant) has seen fit to refer in a very sneering and exceedingly unpleasant manner to myself and to my presence in this House, suggesting that I came quite unwanted. I think I can bear that out, and a great number of the Members of the House are quite prepared to substantiate that statement. The extraordinary disorder which takes place in the House when I rise, sometimes in order, sometimes out of order, gives me to understand that the right hon. Gentleman had at least the sympathy of the House in making the statements which he did. However, I do not think that anything will make me believe that it becomes the dignity, even of a very junior officer of the Government, to make such statements in this House.

I had some difficulty in entering this House, but I came here with a very fixed and definite purpose, and it is my intention to carry that purpose, I trust, to a successful conclusion. No amount of annoyance in this House, no amount of slur and insults from the Treasury Bench, and no amount of attack in the newspapers, will alter me one iota from my intention and my goal.

I have for this House immense respect, and I have great respect for the ruling of the Chair, but as to the Treasury Bench my respect is limited absolutely to that respect to which they have entitled themselves, which, in many cases, in my opinion, is a negligible quantity. So we can deal with the position as it really is.

The reason why I did not appear before that Committee I have already given. I stand on the floor of this House a late member of the Royal Naval Air Service. Do not let us confuse ourselves here, because the chaos in the Service has gradually leaked out of the Service until it has confused not only this House but the British public. There is a Royal Naval Air Service, and there is a Royal Flying Corps. The Royal Flying Corps is in itself the only recognised corps in which there are two branches, the Naval and Military Wing. If any hon. Member cares to get the Army List he can read it for himself. I made charges against the Royal Flying Corps, and those charges include the Naval and Military Wing, but the majority were against the Royal Naval Air Service. There are cases which I brought against

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the Royal Flying Corps, and I am prepared to substantiate every statement I have made in this House about it, but I will substantiate those statements in the presence of men who understand what they are talking about.

If they want to make it a legal point and a question of tripping me up on evidence, perhaps they would be so gracious as to afford me the assistance of some counsel, in view of the fact that they have briefed, I understand, the greatest counsel on evidence they can find. In that way they have rather stolen a march over me. However, I am sure that there are other counsel in this country who will be able to deal with this position upon the point of evidence. If they were willing to grant me the same advantage which they possess I do not mind considering that point in the one count.

On the other count I believe I am right, although I speak in absolute ignorance of evidence. I am a student of the Bar, but if I thank my Maker for anything it is that I never allowed myself to be called to the Bar, because the lawyer politician in this country has brought great discredit, and I say it without fear of contradiction, upon the whole of this House, both inside the House and outside it. We find nothing but Committees full of lawyers, and jobs, jobs, jobs, right, left, and to the centre, until it disgusts clear-thinking people in this country. [Laughter.] Hon. Members laugh. You can laugh; it may be a laughing subject to you, but although it may be a laughing subject to you, it may yet prove the ruin of our country. On that count, at least, it is not a laughing subject. These men, these Gentlemen, these right hon. Gentlemen, have fought across the floor of the House of Commons for years with nothing more fierce than words. Let them face practical issues.

I have had some little experience. I was to have been allowed to appear before this Committee. I was going to be called on points of evidence about a murder charge. Notice the extremely ingenious methods by which the lawyer politician seizes on a more or less grammatical word. I am not the only Member of this House who suggested that, and I do not withdraw in any sense what I meant when I used those words. I reiterate that statement.

An Hon. Member: Go and prove it before the Committee.

Mr. Pemberton-Billing: It has been suggested that our men are being sent up into the air with machines which are not capable of performing the task which they are called upon to perform. I repeat that statement. I have listened with interest to some of the speeches in this House, and with amazement and sheer despair to others. The Noble Lord (Lord Hugh Cecil) suggested this afternoon that when flying at 3,000 feet it did not matter at what speed you might fly relative to the ground, because the speed was constantly relative to the air, and it did not matter whether the machine was fast or slow if you were flying over anti-aircraft guns. That shows an amazing lack of practical experience.

Assuming that the wind is fifty miles an hour, and the machine the man is flying has only approximately fifty miles an hour speed, which is not a very common occurrence, but it is certainly possible, it means that the poor aviator has to stand quite still in the air while the gunner is shooting at him, and he never gets any forrader. If the wind is fifty-one miles an hour, the aviator is proceeding homewards backwards at the rate of one mile per hour. To suggest that speed is not of the utmost importance to our machines is simply misleading the House.

The Noble Lord suggested that it is difficult to tell the speed at which a machine flies. All I have to tell him is this, that if you are in an aeroplane which can only do seventy miles an hour, and another aeroplane is at your tail which can do ninety miles an hour, you very soon discover it, and the excuse that you could make that the other machine was faster would be perfectly true. The most essential thing in an aeroplane is speed in climbing. If you have speed in climbing you always have the advantage, although the other machine may be faster. If you have the climb in hand you can generally beat the aeroplane you are engaged with. All these matters are more or less technical, and should not form the subject of this Debate, but they have been raised. Of course, it is very nice to raise one or two points, which gives the impression of some sort of superior knowledge to those who are listening.

Sir A. Markham: You have never done any flying in the face of the enemy.

Mr. Pemberton-Billing (ignoring the ill-mannered interruption): The point is this: If we have in this country, and we have in this country, the best machines, and some of the best engines, and if we continue, on the other hand, to build machines of design which the Government officially decides, and if we continue to order in large quantities engines which are in the opinion of experts in this country inefficient, then I say we are guilty of supplying our officers with machines that are inefficient, and if they meet their death in consequence of not having the best material, it is very difficult to find a word with which to describe the behaviour or the conduct of those people who are primarily responsible.

In regard to a question which I put to the right hon. Gentleman with reference to 2,500 of what are called R.A.F. engines—Royal Aircraft Factory engines—which were ordered quite recently, I got the usual evasive reply that one gets from the

Treasury Bench, that the Aircraft Factory did not order them. If they did not order them, all I have to say is that the officer who is responsible for ordering them must carry the entire blame. These engines are of eighty or ninety horse-power. The engines in question have proved something in the nature of a failure, and they were ordered in large quantities before they had been properly tested. When they came out, the cylinders, which are the most vital parts of the engine, and really should last for the normal life of the engine, were found to be so faulty that they were constantly cracking and constantly breaking, and the result was that these cylinders, which should last the life of the engine, have been obliged to be put on the Army list as consumable stores. On the question of whether it is an act of criminal negligence to send a man out in an aeroplane with an engine fitted with a cylinder of that sort, I leave it to the House. What has been the result? The Noble Lord said there was no need for an accident through engine trouble if the pilot took charge properly.

This is as far as my charges are concerned. This Committee is not constituted properly, and they have not the full terms of reference. The First Lord of the Admiralty says, "I will not have an inquiry in my Department." Why? I have been sixteen months in the Royal Naval Air Service, and I can give what even a legal-minded gentleman would have to admit was purely clear evidence about the Service. I can imagine hearing the right hon. Gentleman saying, "What, are you going to take the evidence of this officer and make it into a whip to thrash the Government with, or a stick to beat the Government with?" I think the Government stand in urgent need of that.

I think that any stick would be justified, providing we get reform, providing we get something done, which it seems very difficult to get done. This is a Committee which I suggest is a packed Committee. It is the old, old story. They endeavour to discredit me, but that fell through. Then they say, "We will employ men like Sir John Boraston to write letters," which I have read to the House, and there has not been a member of the Treasury Bench who has had courage enough to get up and deny this foul electioneering trick.

"Well, he gets in in spite of all. Then he comes to the House. We will ignore him." I have endeavoured in the interest of the Services not to be ignored in the House of Commons. "He will not be ignored. We must discredit him. All the papers which support us outside must do what they can to hold him up by personal abuse, and any little assistance which we can give will be given."

Then I make a statement which had the fortunate result of bringing about more reforms in the Royal Flying Corps in two months than had ever been effected since its inception. Since I came to the House a certain officer was sent for. He is a complete stranger to me. I never met him. I know nothing of him. I have heard his name mentioned so freely during the last few months that I feel that I know him personally. The reforms which he has brought about in two months would justify anything that I have said or that any man has said in this House. He has completely reconstructed the Royal Flying Corps. He has turned it from chaos into some sort of reasonable body. I am referring peculiarly to the Army Department.

The Service in France has made a very good show with very bad material. He has reconstructed the whole of the War Office side. They have given him, considering his rank, a very free hand. They asked him to save them from themselves, and nobly he has done it. I heard this not from himself, whom I have never met, not from his superior officers, but from junior officers serving under him. The testimony from the men serving under him is the best testimony than an officer can get.

Then I continue my attacks on the Government, and so they say, "We cannot discredit him, or do anything with him. We will side-track him. He has got a certain amount of energy. He is always doing something. We will side-track him." Then they appoint this, I was going to say, comic committee of lawyers, able lawyers, and a gentleman well versed in steam turbines, and another gentleman whose father, I believe, laid the Atlantic cable, and who is an eminent civil engineer, and they expect me to appear before these legal luminaries without any counsel, or any satisfaction whatsoever in their findings, nor would the country have any satisfaction. I am very sorry if the Government think that I am going to be led aside to dissipate any energy which I have, and which I am putting into the job which I am doing, by such foolish tricks. If they think they are going to put up legal Aunt Sallies of this description to alter my determination they are mistaken.

If they care to have a committee consisting of a judge and twelve mechanics, twelve ordinary mechanics, who know their job, who are not looking for any cash or kudos, and they care to ask me to appear before that judge and twelve mechanics, I will do it with pleasure, and prove my case. With that I must leave my relationship with the Government. I am sorry that I have had to trouble the House in my efforts to put that matter straight.

As regards the other committee, I still refer to it as a committee. They have changed its name and called it a board. I suppose that if they get driven into another corner they will change its name and call it a council or something, but we do not get any "forrader." The whole cause of all the trouble in

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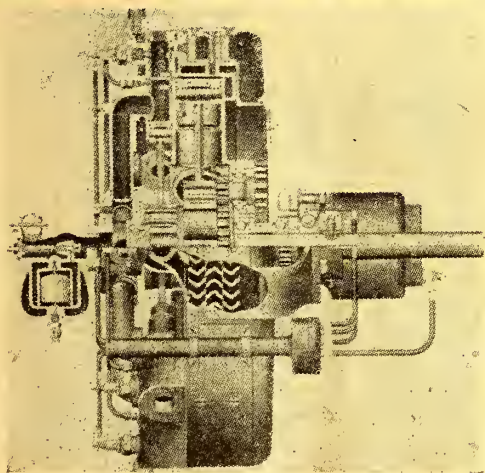
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the Flying Service is the friction which must inevitably arise between the senior and junior branches. The senior branch of the Flying Service, that is the naval branch, naturally feels that it is the senior branch, and the military wing naturally feels that it is the junior branch. That is responsible for a certain amount of friction, and must always be so. But the duties are so very distinct that it is quite possible, and I have always been in favour of it, for the duties to be carried out by the proper service officers in the respective services. There are certain duties which a naval officer knows how to carry out, and others which a military officer knows how to carry out.

Above all there is the need for that which I should have thought

the Government could have seen by now. It has been pointed out to them so many times that one does despair of them ever facing the proposition, and grasping the nettle, without which they will never get forward, and certainly never equal such an efficient nation as we are up against.

[Notice was here taken that forty Members were not present. The House was counted, and forty Members not being present the House was adjourned at seven minutes after eight o'clock.

One learns that with great skill the Coalition Whips had drawn their obedient servants out of the House, and so Mr. Pemberton-Billing achieved another record, in forcing a purposeful "count out" as the only way of shutting him up.]

THE R.F.C. JUDICIAL COMMITTEE.

It is not proposed to publish any of the evidence given before this Committee until it is possible to deal with the Official Report as a whole. Meantime, one may say that the Committee is setting about its task in an eminently businesslike and earnest way. Not only are the members of the Committee taking evidence in Session, but they are visiting various military aerodromes, and interviewing personally officers who have been on active service.

Without pretending to technical knowledge the Committee evidently grasps essential facts with clarity of judgment, and one may reasonably expect its report to deal with the whole subject of R.F.C. organisation in a thoroughly enlightening manner.

THE HOUSE OF LORDS.

On May 16th Lord Beresford asked if it was a fact that certain British and Australian military officers attached to the Royal Naval Air Service during the Gallipoli campaign were mentioned in dispatches by their commanding officer and by the Vice-Admiral Commanding the Eastern Mediterranean Naval Forces, and that their names were omitted when those of the naval officers belonging to the same Service and mentioned in the same dispatches were published in March last.

The Duke of Devonshire said that the list of names sent by the Vice-Admiral was too large, judged by the scale generally adopted for other operations of the war. It was therefore returned to him to reconsider, and the list as gazetted was in accordance with his final recommendations. Some names which were included in the first list were not included in the final list, but in all cases their services had been noted. There was no differentiation between them.

OFFICIALDOM AGAIN.

Sunday motoring for pleasure is likely to be stopped by an order under the Defence of the Realm Act.

Petrol is needed for the Army motor-cars, ambulances, and transport wagons at home and at the front, and for the Fleet, and it has been felt for some time that there should be a drastic curtailment of all unnecessary motor-car use in this country. The Petrol Committee of the Board of Trade sat recently, and it is understood that the week-end "joy ride" will be stopped almost immediately.

Mr. Joynson-Hicks, M.P., one of the leading authorities in Parliament on the motor-car world, said to a "Daily Express" representative the other day:—

"Very few members of the Automobile Association and Motor Union of Great Britain and Ireland now use their cars for pleasure. They are doing national work. I hope the new order will exempt the doctor's car, and I dare say it will.

"While I am strongly in favour of stopping private motor-car jaunts, I do not agree with the suggestion that the new order should apply to motor-omnibuses which take the workers on Sundays out into the country. Thousands of munition workers find healthful recreation in this means of getting out of the large towns."

If this fool regulation is enforced we shall have to shut this office on Wednesdays and open on Sundays. And why is not the office worker, doing his 12 or 14 hours a day, entitled to a breath of fresh air in his car just as much as the over-pampered munition worker is entitled to his week-end jaunt by train or motor-bus? It would appear that Mr. Joynson-Hicks is concerned in some way with the London General Omnibus Co.



"Archie"—A study of a scout being shelled by A.A. guns.

"Evening reconnaissance."—A study of a homecoming scout.

(Two sketches by an R.F.C. officer, now interned in Holland.)

NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," May 16th, 1916.

WAR OFFICE, May 16th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Equipment Officers.—From Asst. Equipment Officers, and to be temp. Capts. whilst so empld.:—Lt. A. E. Snape, Spec. Res., Sec. Lt. C. Jarrott, Spec. Res. (May 1st).

Flying Officers.—Sec. Lt. H. A. Wood, Spec. Res. (April 18th); Lt. W. A. Buchanan, Conn. Rang., and to be sec'd.; Lt. G. S. Bateman, 39th (Res.) Can. Inf. Bn.; temp. Sec. Lt. H. F. Bradley, S. Staff. R., and to be transfd. to the Gen. List (May 2nd).

Flying Officers (Observers).—Sec. Lt. (temp. Lt.) J. McKelvie, R.E., T.F.; temp. Lt. W. G. B. McKechnie, Motor Machine Gun Ser., and to be transfd. to the Gen. List; Sec. Lt. A. W. Smith, L'pool R., T.F.; Sec. Lt. G. F. Knight, Devon R., Spec. Res., and to be sec'd.; Temp. Sec. Lt. A. F. Organ, Gen. List (April 29th); Capt. J. Everidge, Surr. Yeo., T.F.; Lt. L. Eardley-Wilmot, Leic. R., Spec. Res., and to be sec'd.; Sec. Lt. P. F. J. Kent, 3rd D.G., and to be sec'd.; temp. Sec. Lt. W. K. Sutton, R. Suss. R., and to be transfd. to Gen. List; Sec. Lt. A. J. G. Styran, R.A., and to be sec'd.; Sec. Lt. H. B. H. Cox, R.A., and to be sec'd.; Sec. Lt. C. R. Robbins, R.A., and to be sec'd.; Sec. Lt. R. A. Way, Wilts R., and to be sec'd. (May 1st).

Balloon Officer.—Temp. Sec. Lt. G. T. Beale relinquishes his commn. on appt. to a Cadetship (April 27th).

* * *

From the "London Gazette" Supplement, May 16th, 1916.

WAR OFFICE, May 16th.

His Majesty the King has been graciously pleased to confer the Military Cross on the undermentioned Officers and Warrant Officers in recognition of their gallantry and devotion to duty in the field:—
Sec. Lt. ALFRED DE BATH BRANDON, R.F.C. (Spec. Res.)

For conspicuous gallantry and skill in dropping bombs on a Zeppelin at night.
Sec. Lt. (temp. Capt.) HUGH VIVIAN CHAMPION DE CRESPIGNY, Suff. R. and R.F.C.

For conspicuous gallantry and skill, notably when he attacked five enemy machines over the enemy's lines. He drove away one, and brought another to the ground badly hit. His own machine was then crippled by the fire of the remaining three, but after emptying one more drum at them he brought his machine down safely in our lines.

Sec. Lt. WILLIAM JOHN CHARLES KENNEDY-COCHRAN-PATRICK, Rif. Brig. and R.F.C.

For conspicuous skill and determination. He climbed and attacked an enemy machine at 14,000ft., and, although he failed in his first and second attacks, he went for it again a third time, shot both pilot and observer and brought it down. He followed it down and landed alongside.

Sec. Lt. CLAUDE ALWARD RIDLEY, R. Fus. and R.F.C.

For conspicuous gallantry and good work during Zeppelin raids.

* * *

From the "London Gazette" Supplement, May 17th, 1916.

WAR OFFICE, May 17th.

REGULAR FORCES.—ROYAL REGIMENT OF ARTILLERY.—R.H. and R.F.A.—N.C.O. to be Sec. Lt. for service in the Field:—Sgt. L. S. Dell, from R.F.C., and to be sec'd. for duty with R.F.C. (April 16th).

INFANTRY.—R. DUB. FUS.—Act. Sgt.-Maj. M. Keegan, from R.F.C., and to be sec'd. for duty with R.F.C. (April 23rd).

MEMORANDA.—N.C.O.'s and men to be temp. Sec. Lts., for duty with the R.F.C.:—Sgt. A. Fraser, from A.S.C. (Mech. Trans.); Sgt. W. G. Clifford, from 19th Canadian Inf. Bn.; Cpl. J. G. Robertson, from 1st Canadian Mtd. Rif. Bn.; Cpl. S. Wilkins, from 1st Canadian Divl. Sig. Co.; Pte. C. Arkie, from R.E.; Pte. E. Sheffield, from A.S.C. (April 9th); Staff Sgt. E. M. Roberts, from 2nd Canadian Divl. Supply Col.; 1st Cl. Air Mech. A. G. Powell, from R.F.C.; Sec. Cpl. A. K. Hall, from R.E., T.F.; 2nd Cl. Air Mech. A. Hughes, from R.F.C. (April 16th); Staff Sgt. J. Mitchell, from H.Qrs., 5th Canadian Inf. Brig. (April 23rd).

ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Sqn. Comdr.—Capt. G. B. Rickards, S.R., from a Flight Comdr., and to be temp. Maj. whilst so empld. (May 1st)

Equipment Officer.—Sec. Lt. W. J. B. Curtis, S.R., from an Asst. Equipment Officer, and to be temp. Capt. whilst so empld. (April 28th).

Flying Officers.—Lt. H. MacD. O'Malley, S.R., from an Asst. Equipment Officer (May 1st, but with seniority from April 27th, 1915); Lt. A. T. Williams, R.W. Kent R., and to be sec'd., Sec. Lt. L. P. Watkins, S.R. (May 3rd); Sec. Lt. F. H. Whiteman, S.R., Sec. Lt. J. E. Rettie, S.R., Sec. Lt. J. H. T. Letts, Linc. R., and to be sec'd. (May 4th); Lt. M. W. Thomas, R.A., from a Flying Officer (Observer), and to be sec'd. (May 3rd).

Asst. Equipment Officers.—Temp. Sec. Lt. J. D. Drysdale, Gen. List, Sec. Lt. E. McEvoy, Oxf. and Bucks L.I. (May 2nd); Sec. Lt. A. Champion, S.R., Sec. Lt. A. R. Thomas, S.R. (May 9th); Temp. Sec. Lt. H. N. Charles, R.A., and to be transferred to Gen. List, Sec. Lt. J. E. Wight, S.R. (May 15th).

ROYAL REGIMENT OF ARTILLERY.—R.H. and R.F.A.—Temp. Sec. Lt. (temp. Capt.) J. C. Quinnell to be Sec. Lt. (May 18th, with seniority as from March 26th), and to be sec'd. for service with the R.F.C.

MEMORANDA.—The following Capts., R.F.C., Spec. Res., to be temp. Maj.s., without pay or allowances of that rank while specially empld.:—J. T. C. Moore-Brabazon, T. V. Smith (May 18th).

Privates to be temp. Sec. Lts. for duty with the R.F.C.:—L. A. Davis, from W. York R., T.F., D. S. Allan, from Inns of Court O.T.C., E. A. Pope, from Inns of Court O.T.C., G. Ross-Soden, from A.S.C. (May 13th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lts. (on probn.) confirmed in rank:—H. A. Wood, J. E. Wight.

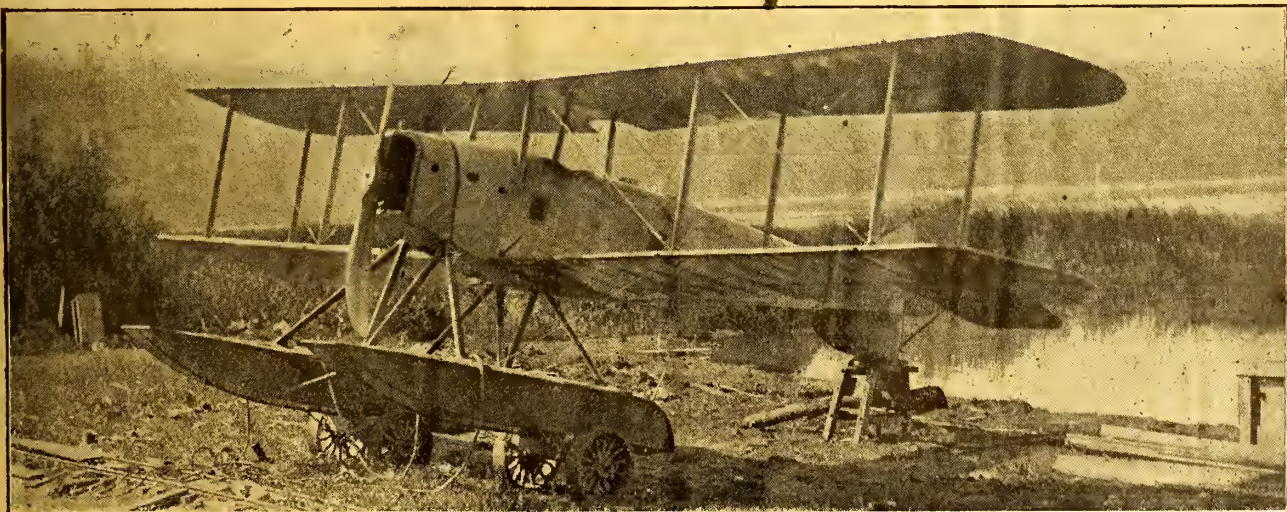
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From the "London Gazette" Supplement, May 18th, 1916.

WAR OFFICE, May 18th.

REGULAR FORCES.—MEMORANDA.—Temp. Sec. Lts. to be temp. Lts. while empld. with the R.F.C.:—G. R. Moser, R. G. H. Adams, S. E. Adams, I. P. H. Preston, G. L. Sly, S. A. Meller, H. H. Watkins, W. E. Hicks-Ussher, H. C. Smith, E. D. Johnson (April 1st).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—Sec. Lt. (on probn.) C. J. Hallward relinquishes his commn. (May 8th); Sec. Lt. (on probn.) L. P. Watkins is confirmed in his rank. To be Sec. Lts. (on probn.): H. J. de C. Moore, F. B. Burton (May 8th).



The New Thomas biplane, which recently broke all American waterplane records by doing 82 m.p.h. over an "out-and-home" course, with a Sturtevant engine.

TERRITORIAL FORCE.—YEOMANRY.—SUSSEX.—Sec. Lt. H. C. Marnham is secd. from duty with R.F.C. (May 17th).

* * *

From the "London Gazette," May 19th, 1916.

ADMIRALTY, May 15th.

ROYAL NAVAL AIR SERVICE.—To be temp. Flt. Lt.:—I. Fraser (Sept. 15th).

WAR OFFICE, May 19th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—Sqdn. Comdrs.—From Flight Comdrs. and to be temp. Majors whilst so employed:—Capt. K. P. Atkinson, R.A.; Capt. C. C. Wigram, Spec. Res.; Capt. C. E. C. Rabagliati, Yorks L.I. (May 1st).

Flight Comdrs.—From Flying Officers, and to be temp. Capts. whilst so empld.:—Lt. G. A. Porter, R.A. (since died of wounds received in action) (Nov. 17th); Lt. R. H. Mayo, Spec. Res.; Sec. Lt. H. G. Salmond, Spec. Res. (May 10th); Sec. Lt. W. J. C. Kennedy-Cochran-Patrick, Rif. Brig. (May 11th).

AERONAUTICAL INSPN. DEPT.—ASST. INSPR.—Lt. G. K. Field, from R.N.V.R., and to be temp. Capt. (May 11th).

ROYAL REGIMENT OF ARTILLERY.—R.G.A.—Sec. Lt. J. F. P. B. Quinlan is secd. for service with the R.F.C. (May 3rd).

* * *

From the "London Gazette" Supplement, May 19th, 1916.

The King has granted to the following officers authority to wear the decorations which have been conferred upon them by the President of the French Republic in recognition of valuable services rendered by them:—

INSIGNIA OF CHEVALIER OF THE LEGION OF HONOUR.
Engr. Lieut.-Commr. EDWARD FEATHERSTONE BRIGGS, D.S.O., R.N. (Squadron Commr., R.N.A.S.).

Lieut. JOHN TREMAYNE BABINGTON, D.S.O., R.N. (Squadron Commr., R.N.A.S.).

Flight Commr. SIDNEY VINCENT SIPPE, D.S.O., R.N.A.S.

These officers took part in the raid on the Zeppelin factory at Friedrichshafen on November 21st, 1914, and were decorated by the G.O.C., Belfort, next day.

The King has been graciously pleased to award the Decoration of the Albert Medal to the undermentioned officer, non-commissioned officer, and men of His Majesty's Forces serving in France in recognition of their gallantry in saving life:—

FIRST CLASS.—Major CYRIL LOUIS NORTON NEWALL, 2nd Gurkha Rifles (attached to the Royal Flying Corps).

SECOND CLASS.—Corporal HENRY HEARNE, Royal Flying Corps.
1st Class Air Mechanic HARRIE STEPHEN HARWOOD, Royal Flying Corps.
2nd Class Air Mechanic ALFRED EDWARD SIMMS, Royal Flying Corps.

On August 3rd, 1916, at about 3 p.m., a fire broke out inside a large bomb store belonging to the Royal Flying Corps, which contained nearly 2,000 high-explosive bombs, some of which had very large charges, and a number of incendiary bombs which were burning freely. Major Newall at once took all necessary precautions, and then, assisted by Air Mechanic Simms, poured water into the shed through a hole made by the flames. He sent for the key of the store, and with Corporal Hearne, Harwood, and Simms, entered the building and succeeded in putting out the flames. The wooden cases containing the bombs were burnt, and some of them were charred to a cinder.

* * *

From the "London Gazette" Supplement, May 20th, 1916.

WAR OFFICE, May 20th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Comdrs., from Flying Officers, and to be temp. Capts. whilst so empld.:—Sec. Lieut. J. Latta, Spec. Res. (April 24th); Lieut. D. A. C. Symington, Spec. Res., Sec. Lieut. J. O. Andrews, R. Scots (April 30th).

From Flying Officers.—Capt. A. K. H. O'Brien, 2nd D.G., Spec. Res., Capt. K. E. Kennedy, Can. Local Forces, Capt. A. S. M. Summers, 19th Hrs., Capt. F. S. Barnwell, Spec. Res., Capt. V. A. Albrecht, Manch. R. (May 1st).

From Flying Officers, and to be temp. Capts. whilst so empld.—Lieut. R. R. Orr-Paterson, Spec. Res.; Lieut. C. d'A. E. W. Reeve, Suff. R.; Sec. Lieut. G. H. Birley, R.W. Surrey, T.F.; Sec. Lieut. G. Mountford, N. Staff. R., T.F.; temp. Sec. Lieut. H. S. Powell, Gen. List; Sec. Lieut. L. Porter, Spec. Res. (May 1st); Lieut. H. MacD. O'Malley, Spec. Res. (May 27th); temp. Sec. Lieut. G. B. Ward, Gen. List; temp. Sec. Lieut. J. T. Rodwell, Gen. List (May 7th).

Flying Officers.—Sec. Lieut. H. C. Marnham, Suss. Yeo., T.F.; Sec. Lieut. E. F. Allen, Spec. Res.; Sec. Lieut. I. L. Knight, Spec. Res. (May 4th); Capt. L. Prickett, R.A., from a Flying Officer (Observer) (May 5th).

MEMORANDUM.—Pte. A. L. Dunstan, from A.S.C., to be temp. Sec. Lieut. for duty with the R.F.C. (May 13th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—The following Sec. Lieuts. (on prob.) are confirmed in their rank:—E. F. Allen, J. E. Rettie, R. J. Bennett, J. A. Coats, E. Stokes.

To be Sec. Lieuts. (on prob.):—W. L. Hay, D. H. Glasson, A. D. Pocock, T. R. Hancock, D. E. Nicolle, W. Buckingham, E. E. E. Pope, R. E. Buckingham, C. L. L. C. Brock, J. Fairbairn, E. J. Henderson (May 13th).

TERRITORIAL FORCE.—YEOMANRY.—SHROPS.—Sec. Lieut. B. P. G. Hunt is secd. for duty with R.F.C. (March 21st).

ROYAL FIELD ARTILLERY.—W. LANCs. BDE.—Sec. Lieut. (temp. Lieut.) R. S. McClintock is secd. for duty with R.F.C. (April 4th).

* * *

From the "London Gazette" Supplement, May 22nd, 1916.

WAR OFFICE, May 22nd.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING.—The following appointments are made:

Equipment Officers.—Temp. Qrmr. and Hon. Lt. A. G. Murphy, and to be temp. Capt. while so employed; from Asst. Equipment Officers, and to be temp. Capts. while so employed:—Qrmr. and Hon. Lt. J. H. Wilford, Lt. H. S. Ebben, S.R. (May 8th).

Flying Officers.—Capt. T. Mapplebeck, L'pool R., S.R., and to be secd. (May 5th); Capt. G. B. Fraser, 2nd R. King Edward's Horse, S.R., and to be secd.; Sec. Lt. (temp. Lt.) A. J. Carlow, Highld. Cycl. Bn., T.F.; Sec. Lt. E. D. Atkinson, I.A. Res. of Officers; Temp. Sec. Lt. L. F. Forbes, Shrop. L.I., and to be transferred to Gen. List; Sec. Lt. R. J. Bennett, S.R.; Sec. Lt. J. A. Coats, S.R. From Flying Officers (Observers).—Lt. H. B. Davey, N. Staff. R., T.F.; Sec. Lt. E. Robinson, R.A., Sec. Lt. A. M. Vaucour, R.A. (May 6th).

Flying Officers (Observers).—Sec. Lt. C. L. Bullock, Rif. Brig., S.R., and to be secd. (March 1st); temp. Sec. Lt. J. A. Barton, Hamps. R., and to be transferred to Gen. List (April 1st). Lt. G. C. Pirie, Sco. Rif., S.R., and to remain secd.; Lt. R. Hilton, R.A., and to be secd.; Sec. Lt. S. A. Sharpe, R.A., and to be secd. (May 4th). Temp. Sec. Lt. J. L. M. de C. Hughes-Chamberlain, Army Cycl. Corps, and to be transf. to Gen. List (May 6th).

Asst. Equipment Officers.—Temp. Sec. Lt. J. R. Grant, Gen. List; temp. Sec. Lt. S. E. Devonald, Gen. List (April 11th); temp. Capt. A. B. Kynoch, W. Rid. R., and to be transf. to Gen. List; temp. Lt. C. Porri, Gen. List, from a Flying Officer (Observer); temp. Sec. Lt. N. A. Ayres, Gen. List; temp. Sec. Lt. J. H. Banks, Gen. List; Sec. Lt. E. Stokes, S.R. (May 1st).

MEMORANDUM.—Fl. Sgt. K. G. F. Collender, from R.F.C. (S. Afr. Sqdn.), to be temp. Sec. Lt., for duty with Mil. Wing of R.F.C. (April 3rd).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lts. (on prob.) confirmed in rank:—F. H. Whiteman, I. L. Knight. To be Sec. Lts. (on prob.):—S. Dendrino, H. J. Gibson, G. Kay (May 13th).

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, May 17th.

The following officer had the honour of being received by the King, when His Majesty conferred on him the Military Cross:—Captain ERNEST GOSSAGE (R.A. and R.F. Corps).

The King also conferred the following decoration:—The Albert Medal (Second Class):—Chief Petty Officer MICHAEL SULLIVAN KEOGH, R.N.A.S., late of H.M.S. "Ark Royal."

On Aug. 19th, 1915, an aeroplane, piloted by the late Captain C. H. Collet, R.M.A., was ascending from Imbros aerodrome, and had reached a height of 150 ft. when the engine stopped. The machine was upset by the powerful air currents from the cliffs, and fell vertically to the ground, whilst the petrol carried burst into flames, which immediately enveloped the aeroplane and pilot. Chief Petty Officer Keogh, upon arriving at the scene of the accident, at once made an attempt to save Captain Collet by dashing into the midst of the wreckage, which was a mass of flames. He had succeeded in dragging the fatally injured officer nearly clear of the flames when he was himself overcome by the burns which he had received from the blazing petrol.

[C.P.O. Keogh's action has been described by those who saw it as one of the most gallant things a man has ever done. It may be well to point out that Capt. Collet was not fatally injured by the fall of the machine, a B.E., but by burns. This is another argument in favour of the development of engines using paraffin or other heavy fuel.—Ed.]

NAVAL.

The following appointments were announced on May 16th:—

ROYAL NAVAL AIR SERVICE.—Lieut.-Commr.—C. L. Kerr, D.S.O., to "Attentive," addl. (May 15th).

The following have been entered as Proby. Flt. Sub-Lieut. (temp.), seny. as stated, and all apptd. to "President," addl., for R.N.A.S.:—W. H. Richardson (Sub-Lieut., R.N.R.), May 15th; R. J. Paul, S. D. Scott, J. A. Piquet, W. M. Lusby, and G. C. B. Cotterell, all May 21st.

* * *

The following appointment was announced on May 17th:—

Mr. A. E. Siddons-Wilson, entered as Sub-Lieut. (temp.) (R.N.V.R.), seny. of May 16th, and apptd. to "President," addl., for R.N.A.S.

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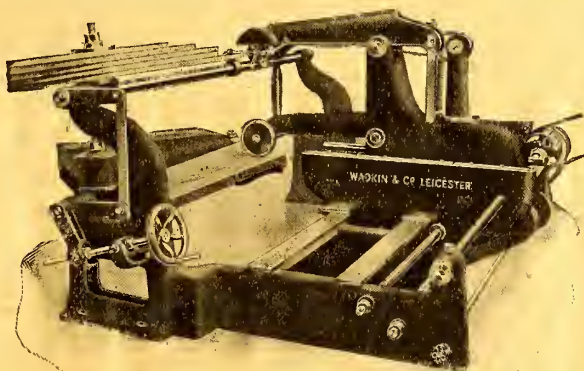
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The following appointments were announced on May 18th:—

Temp. Sub-Lieut. (R.N.V.R.).—J. E. Brewin, entered as Proby. Flt. Sub-Lieut., for temp. service, seny. of May 15th, and re-apptd. to "President," additional, for R.N.A.S. (temp. commission as Sub-Lieut. R.N.V.R. terminated).

Midshipman (temp. R.N.R.).—W. V. Simons, entered as Proby. Flt. Sub-Lieut. (temp.), seny. of May 20th, and apptd. to "President," additional, for R.N.A.S.

Mr. J. B. Daniell, entered as Proby. Flt. Sub-Lieut. (temp.), seny. of April 9th, and appointed to "President," additional, for R.N.A.S.

Mr. J. M. Mapplebeck, entered as Proby. Flt. Sub-Lieut. (temp.), seny. of May 22nd, and apptd. to "President," addl., for R.N.A.S.

Messrs. E. B. Falkner and C. R. D'Arcy, both granted temp. commissions as Lieut. (R.N.V.R.), seny. of May 17th, and apptd. to "President," addl., for R.N.A.S.

Mr. V. L. Edwards, granted temp. commission as Lieut. (R.N.V.R.), seny. of May 17th.

* * *

The following appointment was announced on May 19th:—

New Entry.—The following temp. entry has been made, with seny. of May 16th: Engr. Sub-Lieut. F. Squirrell (Air Mechanic, R.N.A.S.).

* * *

The Secretary of the Admiralty announces that letters and postal parcels for the Royal Naval Air Service stationed abroad should be addressed as follows:—

(1) Official number (if known); (2) rank or rating; (3) name; (4) unit, e.g., "No. 2 Wing," "No. 3 Kite Balloon Section," "Airship Detachment, No. 2," or, if serving in one of H.M. ships, give the name of the ship; (5) care of G.P.O.

The words "Mediterranean Expeditionary Force" should not be used in the address of letters to units on the Mediterranean station.

The rates of postage to R.N.A.S. abroad are:—

Letters, 1d. per oz.; postcards, 1d. each; newspapers, 3d. per 2 oz.; parcels not exceeding 3 lb. 1s., over 3 lb. and not over 7 lb. 1s. 6d., over 7 lb. and not over 11 lb. 2s. 6d.

The following R.N. Air Service squadrons have been given numbers as shown:—Wing Commander Gordon's Squadron, No. 6 Squadron; Squadron Commander Cull's Squadron, No. 7 Squadron; Squadron Commander Nanson's Squadron, No. 8 Squadron.

Correspondence for officers and men serving with these squadrons should be addressed to the respective squadron numbers.

Correspondence should not be sent to the Admiralty or Air Department to forward.

* * *

Flight Sub-Lieutenant Frank Besson, R.N., has been missing since December 20th, 1915, on which day, his observer now reports, he was drowned. He was 20 years of age. He entered the Royal Naval Air Service on December 21st 1914, and saw active service at Dunkirk and the Dardanelles, where he lost his life. He was educated at Westminster, where he was a sergeant in the O.T.C. In 1914 he won the Public Schools mile race at Stamford Bridge. He had taken a keen interest in aviation since the age of 12, and exhibited a model aeroplane in the Aeronautical Exhibition of 1909.

* * *

With reference to a paragraph in THE AEROPLANE last week concerning C. P. O. Brady, R.N.A.S., who was recently awarded the Distinguished Service Medal, it is understood that he disclaims any part in the incident ascribed to him, and apparently his decoration was awarded for an entirely different, but one is assured an equally gallant, act.

As will be seen from the "Court Circular," C. P. O. Michael Sullivan Keogh, R.N.A.S., was decorated by the King last week with the Albert Medal for his gallant attempt to save the late Captain Collet. One gathers indirectly that Mr. Brady was four miles away from the scene of the accident at the time it occurred.

The confusion arose in the Editorial mind owing to both C.P.O.'s having typically Irish names indigenous to the same part of Ireland. He tenders his apologies and at the same time his congratulations to both these gallant men.

* * *

The engagement is announced of Sub-Lieutenant Norman Sladden, R.N.V.R., attached R.N.A.S., and Miss Gabrielle Vallings, cousin and adopted daughter of Mrs. M. St. Leger Harrison (Lucas Malet), of The Orchard, Eversley, Hants.

* * *

An engagement is announced between Rex Willington Lane, R.N.A.S., only son of Mr. and Mrs. Willington Lane, of Old Palace House, Waltham Cross, and Frances Ailsa, eldest daughter of the late E. J. Bridgman, of Hoddesdon, and Mrs. E. J. Bridgman, of Upshire Hall, Waltham Abbey, and niece of the late Major Roddick, Essex Yeomanry.

MILITARY.

G.H.Q. communiqué of May 17th, 9.57 p.m., says:—

An Albatros was attacked, driven down, and wrecked near Lille. Another was driven down north of Vitry in a damaged condition. A third, attacked by one of our scouts, was seen to turn upside down near the ground.

One of our reconnaissance machines failed to return. It was seen to land under control in hostile territory. One of our scout aeroplanes is also missing.

A great deal of successful artillery and photographic work was accomplished.

* * *

G.H.Q. communiqué of May 18th, 10.24 p.m., says:—

Yesterday there was again considerable aerial work. Thirteen combats took place. One hostile machine is believed to have been accounted for, as it was last seen descending vertically.

* * *

G.H.Q. communiqué, May 19th, 10.28 p.m., says:—

In the air there was considerable activity. One hostile machine was driven down behind the German lines.

* * *

G.H.Q. communiqué, May 20th, 10 p.m., says:—

Yesterday the weather again favoured flying, and much successful work was done. There were thirteen combats in the air, in the course of which two hostile machines were brought down behind the enemy's lines.

* * *

G.H.Q. communiqué, May 21st, 9.45 p.m., says:—

Yesterday our aeroplanes had several successful encounters with hostile aircraft.

An Aviatik fell on fire into some trees near Adinfer Wood in the enemy's lines, one of its occupants being seen to fall out.

Another hostile machine fell in flames near Contalmaison, also in the enemy's lines, after an encounter with one of our scouts.

A third crashed to earth in our lines near Maricourt.

One of our aeroplanes fell in the enemy's lines.

Much successful artillery work was accomplished.

Early this morning a hostile machine landed undamaged in our lines. The pilot and observer are prisoners.

* * *

G.H.Q. communiqué, May 22nd, 10.40 p.m. says:—

Yesterday the enemy aeroplanes were active. Many were engaged by our machines, and eight were driven off, though none was brought down.

During the day one of our reconnaissance machines was forced to land in the enemy's lines.

* * *

The Secretary of the War Office made the following announcement on May 19th:—

The General Officer Commanding-in-Chief in Egypt reports that our ships, aeroplanes, and seaplanes successfully bombarded El Arish, an important post on the enemy line of communications from Syria to Egypt (35 miles west of the frontier) on the morning of May 18th.

The aerial attack was divided into two phases. The seaplanes opened the bombardment, being followed later by aeroplanes. The latter were given orders to engage any hostile machines, and to devote special attention to enemy troops and camp. A column of troops about 1,000 strong were seen south of the town on the march, and three bombs exploded amongst them. All camps were effectively bombarded.

All ships and machines returned safely.

* * *

The following communiqué was issued by the Field-Marshal, Commanding-in-Chief, Home Forces, at 1 p.m., on Saturday, May 20th:—

A hostile air raid was carried out on the East Coast of Kent last night by at least three seaplanes.

The raiders made the English coast at a few minutes past two this morning. One seaplane then turned north and dropped a dozen explosive bombs over the Isle of Thanet. Some windows were broken, otherwise there were no casualties and no other damage.

The two other seaplanes seem to have turned south and dropped some 25 explosive bombs over South-Eastern Kent.

In one town a few bombs took effect; one soldier was killed, one woman and one seaman were injured. One publichouse was wrecked, and several houses were damaged. The remaining bombs caused no casualties or damage.

The raiders all made off as soon as their bombs had been discharged.

One raider (seaplane) was brought down by a naval patrol off the Belgian coast this morning.

* * *

THE CASUALTY LIST.

Reported May 17th.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Lawrence, Sec. Lieut. W. G., Oxford and Bucks L.I. and R.F.C.

PREVIOUSLY REPORTED MISSING, NOW REPORTED MISSING, BELIEVED KILLED.—Dennistoun, Lieut. J. R., Canadian Div. Cyclist Co., attd. R.F.C.

PREVIOUSLY REPORTED MISSING, NOW REPORTED WOUNDED AND A PRISONER OF WAR.—Gayford, Sec. Lieut. D. B., Queen's (R.W. Surrey R.), and R.F.C.

Reported May 18th

KILLED.—Amor, Lieut. E. J., Middlesex and R.F.C.

Tillie, Capt. A. R., Cameronians (Scottish Rifles) and R.F.C.

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WOUNDED.—Chaworth-Musters, Sec. Lieut. R. M., Leicestershire and R.F.C.
Findlay, Lieut. A. L., R.F.C.

Reported May 19th.
PREVIOUSLY REPORTED KILLED, NOW REPORTED MISSING, BELIEVED KILLED.—Ryckman, Sec. Lieut. E. G., R.F.C.

Reported May 21st.
SOUTH AFRICAN FORCE.—DIED.—R.F.C.—Cowle, Z-178, Air Mech. J. H.

Reported May 22nd.
KILLED.—Jones, Lieut. T., Canadian A.S.C., att'd. R.F.C.
Cotton, 3994 1st Cl. Air Mech. S

Reported May 23rd.
WOUNDED.—Forbes, Capt. E. W., R. Warwickshire, att'd. R. Flying Corps.

MISSING.—Grinnell-Milne, Capt. D., R. Fusiliers and R. Flying Corps.

* * *

On May 17th Lieutenant Charles Darrell Merrett, of the Australian Flying Corps, was killed in a flying accident.

At the inquest, on the same day, Captain Lord Lucas, Hampshire Yeomanry and R.F.C., said he was instructing Lieut. Merrett in a dual-control machine, and he thought that his pupil pulled the aeroplane's nose round, causing it to lose flying speed. A verdict of "Accidental death" was returned.

* * *

On May 18th a fatal accident occurred at Gosport. Lieuts. Selwyn and Bateman, R.F.C., started off on a military biplane, but the machine got out of control at 1,000 feet and dived to the ground. Both officers, who were aviators of experience, were killed.

* * *

It is reported that on May 18th a curious accident occurred in the South of England. A mechanic, Richard Allen, was about to ascend with Lieut. Brook when it was seen that a piece of waste had settled on the boss of the propeller. Allen got out of the machine to remove it, and was struck by the propeller, receiving injuries from which he died.

* * *

Lieut. E. J. Amor, Middlesex Regiment and R.F.C., received his commission as temporary second lieutenant in June of last year, and had been recently promoted.

* * *

TILLIE.—On May 11th, killed in action, Captain Arnold Reed Tillie, Cameronians (Scottish Rifles), attached Royal Flying Corps, dearly loved second son of William J. Tillie, Elstow, Londonderry, aged 22.

Captain Tillie was educated at Kelvinside Academy, Glasgow, and Uppingham. He obtained his commission in the Cameronians in the second month of the war. He was appointed flying officer R.F.C. after a year's service with his battalion, and was promoted to flight commander in March last.

* * *

Lieut. T. Jones, Canadian Army Service Corps, attached R.F.C., obtained his commission in the Canadian Imperial Force in April, 1915, and was gazetted a flying officer in the R.F.C. in the November following.

* * *

SELWYN.—On May 18th, 1916, killed while flying near Gosport, Arthur Penrose Selwyn, Lieut. 11th (K.E.O.) Lancers, I.A.R., and Royal Flying Corps, dearly loved husband of Eileen Selwyn and third son of the Rev. Dr. Selwyn, Undershaw, Hindhead, aged twenty-six.

Lieut. Selwyn was born in August, 1889, and educated at Uppingham, where he was a sergeant in the O.T.C. In 1910 he became a tea-planter in India, and while there joined the Assam Valley Light Horse. On the outbreak of war he received a commission in one of the cavalry regiments, and in 1915 he served in France with the Indian Division. In July he was attached to the Royal Flying Corps as an observer, and was present at the battle of Loos. In January of this year he began his training in England

as a pilot in the R.F.C., and on May 16th he received his wings at the C.F.S., Upavon. Lieut. Selwyn was a fearless rider and won many races in India. He married in Nov., 1915, Eileen, only daughter of Mr. George Grabham, of Belize, British Honduras. His twin-brother, C. W. Selwyn, of the 5th Leicestershires, died of wounds in France in May of last year. Three other brothers are serving in the Army.

* * *

Captain Gerald Blunt Lucas, Indian Cavalry, attached Royal Flying Corps (died of wounds received in action on May 16th), was the youngest son of the late Lieutenant-Colonel C. A. de N. Lucas, Indian Army, and of Mrs. Vyvyan Williams, of Teignmouth, Devon. Born in August, 1890, he was educated at Haileybury, and passed out of Sandhurst to the Unattached List for the Indian Army in January, 1910. In the following year he was gazetted to the Indian Army; promotion came to him in April, 1912, and he was gazetted captain this year.

* * *

HIGGINS.—On May 13th, at 42, Belgrave Road, S.W., the wife of Major T. C. R. Higgins, the King's Own Regt., and R.F.C., of a daughter.

* * *

The engagement is announced of Lieut. Crathorne Edward Charlton Anne, R.F.C., youngest son of Major Anne, of Burghwallis Hall, Yorkshire, and Annie Charlotte Ellen, only daughter of the late Mr. John Alexander Miller and the late Mrs. Miller, of Edinburgh.

* * *

It was noted last week that "Truth" had somehow been induced to air someone's grievance over officers of considerable military seniority, but of comparatively short service in the R.F.C., being promoted over the heads of others who have served a longer time in the Corps. "Truth" had the bad taste to mention four officers by name, Majors Chamier, Cherry, Higgins and Hogge, as being promoted with undue rapidity. It was explained in this paper last week that the two first-named officers have done work of high value to the Corps, apart from the fact that their military service as distinct from flying fits them to command men.

One now learns from those who have served with them that the two latter officers have earned promotion equally well. Major Higgins fought in the South African war, besides being mixed up in sundry of our minor wars elsewhere, and in all he won the approval of his commanding officers. One may not, of course, be specific as to his R.F.C. service, but one may perhaps be permitted to mention that everyone in London owes him a debt of gratitude for certain organising work which he has done, and that besides being an organiser he is a pilot of proved ability. Major Hogge, likewise, has seen active service, and besides being a capable pilot, is able both to lead and command men, so "Truth's" criticism is singularly ill-advised.

So far from unfair promotion taking place, it is possible to cite instances where very able senior officers have been refused promotion because they have not had sufficient flying seniority. There is even an instance of an officer commanding a wing of an infantry battalion who served for some months as an observer with the R.F.C., and who later took his aviator's certificate and then passed for his "wings," but who left the Corps rather than serve as a mere flying officer, with the possibility of being appointed to a squadron in which one of his own subalterns was a flight-commander, and therefore his senior. On pure military experience he could well have commanded a wing of the R.F.C., and one gathers that he is now commanding a brigade of infantry with conspicuous success, yet he was not even offered the command of a squadron.

It is improbable that his is an isolated case. On the other hand, one can point to young officers who were civilian aviators when war began, who are now commanding R.F.C. squadrons, and doing their job well. They have won their promotion by their military ability, but they have qualified for it by their flying experience.

It seems therefore that there is very little to grumble about in R.F.C. promotions. Here and there an officer may be unusually lucky in his friends and be promoted with surprising rapidity, and here and there a good man may be overlooked, also a man who deserves promotion may be the victim of a misunderstanding, but averaging it all round, the man who commands a squadron is as a rule thoroughly well fitted for the job.

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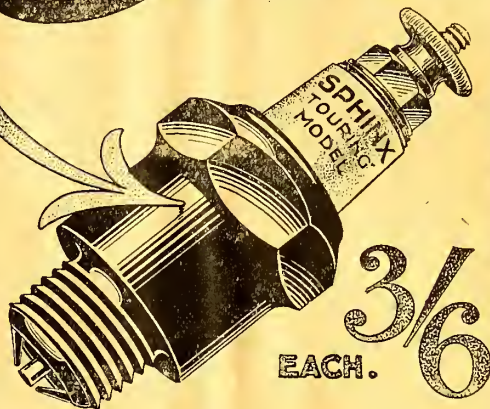
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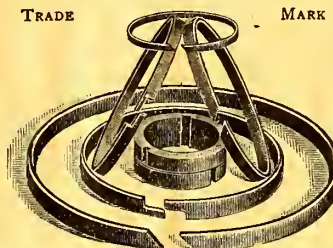
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AN EXPLANATION.

Absence of foreign notes must not be taken as indicating the cessation of the war. Parliamentary verbosity is the cause of their omission this week, together with school reports.

MILESTONES—XXX.

The picture on the front of the cover illustrates the following machines.

In 1911 a good deal was seen at Brooklands of the Percival-Billing tractor biplane with E.N.V. engine. Owing to the howling noise made by the radiator it was commonly known as the "Oozley Bird."

The Flanders monoplane with 60-h.p. Green engine had many points of originality, and for the power employed was very efficient.

The interesting Avro biplane built for the 1911 "Daily Mail" race had a 60-h.p. E.N.V. engine. Contrary to rumour at the time this machine did not break in the air, but an extension to the lower wings put on in the shed without Mr. Roe's approval came adrift and caused a smash.

The Train monoplane, much flown in France, with 50-h.p. Gnome, was chiefly curious as an early "parasol."

The Astra biplane with 6-cylinder Chenu was a promising French three-seater. The Ferguson monoplane with a 35-h.p. J.A.P. engine was the first Irish monoplane to fly.

FLYING AT HENDON.

With a spell of summer weather the attendances have been good lately at the London Aerodrome, though not so large as one might expect. There are few more interesting and healthy open-air resorts near London, and for convalescent soldiers Hendon is just the place for an afternoon's outing. Plenty of passenger carrying is done daily, especially on Thursdays, Saturdays and Sundays, but the exhibition flights are somewhat spasmodic, and it seems a great pity that sporting events are not organised.

Last Thursday there was a good deal of flying on various machines. Mr. Birchenough was busily testing the products of the Aircraft Manufacturing Company, whilst Mr. Clifford Prodger was conspicuously successful with Curtiss biplanes. On one occasion he looped gaily with the writer as passenger. The sensation is quite exhilarating. After rocking the machine sideways to attract the passenger's attention the pilot puts one hand outside the nacelle and describes imaginary loops, at the same time assuming an interrogative expression. If the passenger indicates in return, by signs, that he doesn't care what becomes of him, there is a sudden vertical dive, during which the speed appears to be several hundred miles an hour. This is followed by an entire change of scene, the earth disappearing and blue sky coming up in front.

The sky in turn disappears, followed by the earth, which is now overhead and obviously out of place. There is at the same time a sensation of pressure inside the top of the head and this is the time the fountain-pen begins to leak in the pocket. However, the sky soon goes back where it belongs and all is well. Mr. Prodger is quite used to the feat, and evidently has the completest confidence in the Curtiss machines.

The Grahame-White three-seater is always hard at work each day, and seems more popular with passengers—and more graceful—than the old five-seater, now rebuilt and probably being admired by geishas in some Japanese Hendon.

On Saturday one noticed among other distinguished visitors Mr. Bernard Shaw, with his not-motoring-for-pleasure car. Mr. G. W. Beatty gave an interesting display, and several of the Grahame-White pilots were out.—D. W. T.

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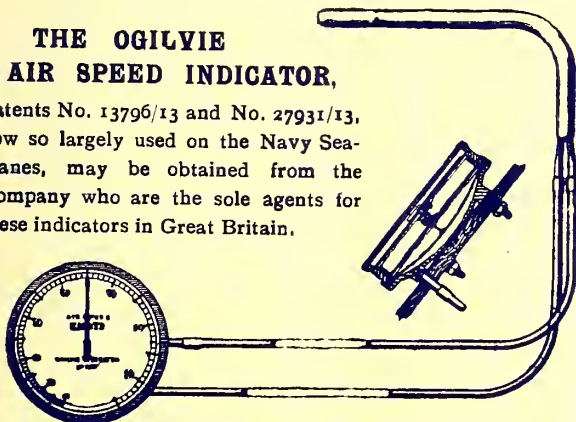
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WEDNESDAY, MAY 31, 1916

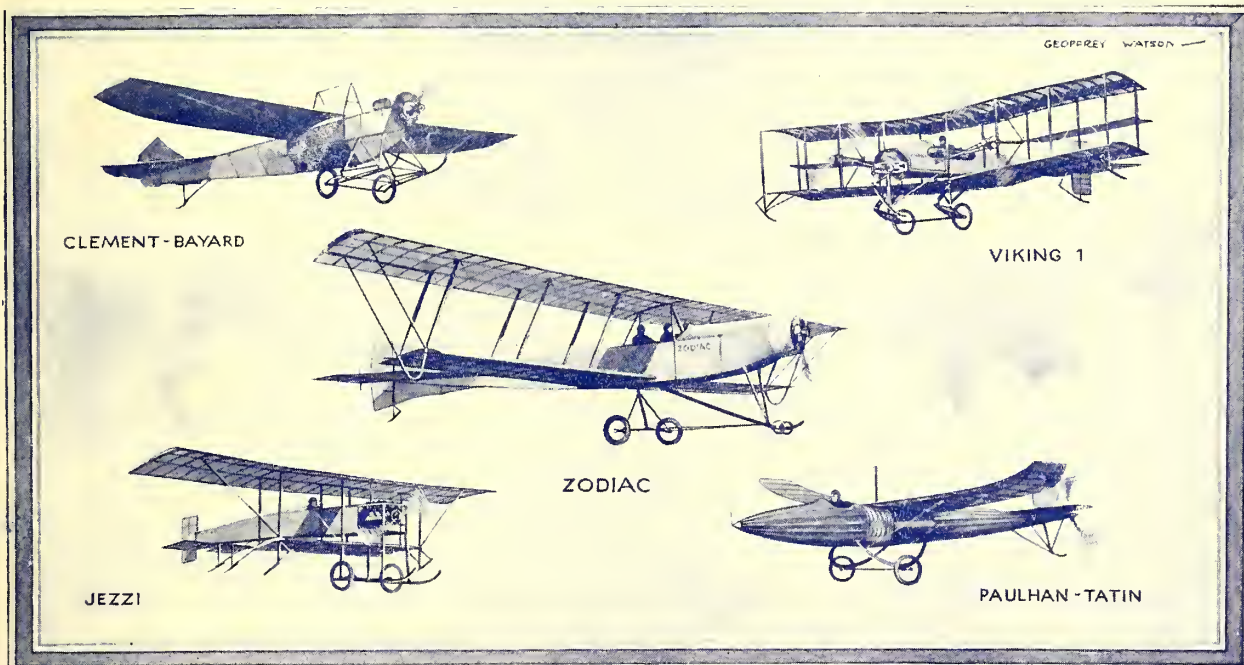
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THE CONSTITUTION OF THE AIR BOARD.

Once more it is a pleasing duty to record that the House of Lords has debated a matter of vital importance to the Empire in a manner which demonstrates their higher mental, moral, and intellectual plane as compared with the House of Commons. Comparisons may be odious, but comparison between the speeches reported this week and those of the previous week should convince the people of this country that we still possess an aristocracy in the proper sense of the word.

With few exceptions, the Lords' speeches show a statesmanlike grasp of the subject, and Lord Curzon's plain, straightforward statement, enlivened by one flash of humour partly at his own and partly at Col. Churchill's expense, gives one even greater hope for the future good to be done by the Air Board.

Lord Derby appears to have complained that the War Office has more weight on the Board than has the Admiralty. This may be so, but it may not be an unmixed evil. Certainly Sir David Henderson and General Brancker between them know more about aviation than Admirals Tudor and Vaughan-Lee.

The appointment of General Brancker is particularly to be welcomed, for though very young for his rank he has had great experience of active service, he is a practised pilot who really likes flying, and he is an organiser of proved ability. Moreover, the Flying Corps has confidence in him. One hopes that he will find time to attend the meetings of the Board without interfering with the valuable work he is doing at the War Office.

Admiral Tudor will, of course, carry weight with their other Lordships of the Admiralty. Admiral Vaughan-Lee does not pretend to possess vast knowledge of aviation, but he has gathered round him many excellent officers of the R.N.A.S. whose advice he is not too proud to take, and he has already shown in recent improvements in the Service his ability to organise. One assumes also that Commander Groves, the assistant secretary of the Board, a first-class pilot and a young and very able officer with thoroughly up-to-date active-service experience, will not be confined wholly to secretarial duties, for, seeing that no one on the Board has a vote, it is possible that a secretary may express an opinion. Therefore one may take it that the Services are not so very unequally balanced.

Another of Lord Derby's complaints was that there seems to be no definite air policy. It may well be one of the first tasks of the Board to decide to its own satisfaction, and thereafter to persuade the Admiralty and War Office, whose job it really is to carry on aerial offensive and defensive work apart from naval and military operations. The Navy seems to have the most men and machines to spare for such affairs, but it may be difficult to persuade the R.F.C. that in doing so the R.N.A.S. is not usurping a military prerogative. This seems to be the chief matter of policy to be decided, for on it most other points of policy hinge, such as the ordering of aeroplanes by the respective Services, the types which are to be ordered, and the quantities needed.

Actually, the work of the Board seems to be to secure

Co-ordination between the Services rather than Combination. Personally, I still hold that absolute combination is impossible, and that a sailor will always be a sailor and a soldier always a soldier. One has only to ask any *pukka* Service officer whether he would leave the Navy or Army to join an Air Service irrevocably, and one soon finds that the best class of officer would refuse without further argument. The formation of a Third Service with a *personnel* composed of present-day Service aviators who were civilians before the war is another question entirely.

THE WILD INVENTOR.

Lords Northcliffe, Galway, and Beresford all seem to over-rate the value of inventors. A very minute percentage of inventions is of the slightest use, and a valuable invention is almost always snapped up by a manufacturing firm, or by the department most concerned, long before it reaches any of the Inventions Boards of which we have heard so much. I suppose I have seen a couple of hundreds of inventions since war began, most of which are going to revolutionise aviation. Only two of the lot were of any value, and one of them was a new method of manufacture which was adopted promptly by a business-like firm. It is true that it had been turned down by a Government department, but that was only to be expected by anyone who knows the official who viewed it. The other is still in process of development by the inventor.

Lord Northcliffe always classes the Wrights as inventors. As a matter of fact they *invented* nothing. They merely developed the ideas of Chanute, Lilienthal, and Montgomery, parallel with the Voisins, Blériot, and Farman, and they built a very light engine to which they geared sensible propellers. They certainly patented a method of control, but that also was itself a development.

Lord Haldane was completely in error when he said the Wrights lacked science. As far as they went their science was as exact as that of the Government Advisory Committee, the N.P.L., and the R.A.F., if not more so, because their theories still hold good, whereas I gather that some of the N.P.L.'s pet empirical formulæ and theories have been badly upset lately, especially in the matter of wing curves.

ENCOURAGING IMPROVEMENT.

Taking it by and large aeroplanes are past the "inventions" stage, except as regards details, unless someone invents a gas-turbine or efficient jet-propulsion, and henceforth progress will be along the lines of straight development from existing types. To this end the Air Board will do well to encourage manufacturing firms to develop new types of their own.

One could point to several instances in which firms have been prevented from producing better aeroplanes owing to better types of engines being diverted to purely experimental efforts favoured by Government "experts."

In another part of his speech Lord Northcliffe talked of "giving out work in parts" to be made in quantities by specialists. This was suggested in *THE AEROPLANE* in July last. The standardisation of certain parts, such as wheels, cables, screws, etc., was fully discussed early in

1914, months before the war, the idea being to give designers and constructors plenty of latitude in general type of aeroplane, while compelling them to use standard material which would simplify repairs on active service.

Of course, nothing was done officially, but during the past year a number of small firms have specialised on more or less standard fittings, and one firm at least has developed itself into a kind of Clearing House for such parts, with, one hopes, profit to itself and certainly with immense advantage and convenience to aeroplane constructors.

Lord Haldane said that the Admiralty and War Office have used "science." They have. A great deal too much. With the result that official aeroplanes have suffered like the beer of the past from "too much science and not enough hops." They never standardised from the point of view of the workshop manager. Lord Haldane boasted that he saw the Wrights himself. He probably learned little, for they were singularly reticent men. As Wilbur Wright said, "The parrot is the bird that talks most and flies least." If Lord Haldane had seen the Farmans, and Shorts, and Voisins, not to mention pioneers like Horatio Phillips and José Weiss, and the later leaders of progress like Messrs. Sopwith, Handasyde, Handley Page, Howard Wright, Flanders, and others, he might have learned much to his advantage and we might have been much further forward in aeronautical development to-day.

So far as it is possible to gather, Lord Rayleigh's Committee, of which he boasted, has done nothing to hasten definite progress. And Lord Haldane is primarily responsible for the Royal Aircraft Factory and all that it connotes.

A DANGEROUS QUESTION.

In his lucid exposition of the tasks before the Board Lord Curzon referred to a Joint National Factory as one of certain "questions on which it would be absolutely dangerous for the Government to rush to a conclusion."

One agrees cordially, for any conclusion, sudden or otherwise, to establish such a factory would be disastrous. There is undoubtedly a certain clique in high places whose desire still is to make flying a Government monopoly during the war so that they may exalt themselves to control it after the war. Till that clique is defeated and turned out of power there can be no prospect of this country winning the Command of the Air.

Only by free and friendly competition can aircraft be fully developed. Government control would destroy all competition and all initiative.

The French and Germans have developed their engines and aeroplanes by commercial competition plus Government support. We have done precisely otherwise. Our factories are tied down to Government designs, and we buy French aeroplanes because our official machines cannot perform as well. When a British design beats the French, as one did recently, it was in spite of officialdom and not with official help.

If the British Aircraft Industry is stamped out by a Joint National Factory, aided by super-taxation of war profits—which the constructors are only anxious to spend in buildings and machinery to increase their output—there is an end to any hope of an Imperial Air Service which will win for us the Command of the Air. But there are people who would see this done provided that they and their friends might keep under their thumbs what is left of an Air Service.

There is work hereabouts for the Society of British Aircraft Constructors, and I commend to their attention the idea of consolidating their position by collectively getting in touch with the Air Board and demonstrating their willingness to help, as only they can help, provided the Board agrees to help them in its turn. A society of patriotic manufacturers does not threaten to go on strike, as their workmen would do if anyone attempted to tamper with their means of livelihood, but one imagines they can make their weight felt in other ways.

One imagines that Lord Curzon is not a Socialist, and that therefore he may not sympathise with State ownership of aircraft design or construction—one is as bad for progress as is the other—so one has hopes.

IN FINE.

Lord Curzon's speech was on the whole highly encouraging, and one trusts that all his ambitions may be fulfilled. He owes it to Lord Montagu that the present promising situation has come to pass, and if, as one hopes and trusts, the Air Board is a success, the Services and the Industry alike must ever remember that it was Lord Montagu who roused the interest of the House of Lords in this great subject of the Command of the Air, and that he pointed out to them the right lines of development with due regard to English worship of precedent and compromise.—C. G. G.

THE AIR DEBATE IN THE HOUSE OF LORDS.

The following précis of the debate on the Flying Services in the House of Lords on May 23rd is taken with due acknowledgments from the "Times" newspaper, which gave the debate very full attention:—

Lord Montagu of Beauchieu rose to move:—"That this House considers that the development of aviation for purposes of war can no longer be efficiently carried on under the present system of the divided control and responsibility of two separate departments; and that the time has now arrived when the supply of men and materials should be concentrated under single control, at the same time leaving the executive power over Naval and Military aircraft with the Army and Navy as at present."

He said,—I rise with a sense of unusual responsibility. There was a breakdown to a certain extent in the discussion of this matter in the House of Commons last week, and since the late Order in Council it has become difficult to discuss this very important subject outside these walls.

When I spoke a little more than two months ago I made certain statements which are to be the subject of inquiry by a judicial committee. I am going to that committee most willingly and as a matter of courtesy. I hold very strongly, however, that any criticisms which we in the House make on the Government on this or any other matter should be answered across the floor. If a member of Parliament who makes criticisms of a Government Department were always to be liable to have to explain these statements before a committee, there would be no freedom of debate. This judicial committee consists mainly of gentlemen who do not pretend to be experts. I have every confidence in their

impartiality, and I am prepared to submit everything I have said to their examination. There is very little in my past utterances on this question which has not come true.

I rejoice to know that in future we shall have Lord Curzon, who has taken immense interest in this question, and will shortly become an expert on it, to reply to criticisms. Other conceivable ways of getting over the difficulty of replying on technical points would be to make the Director of the Naval Air Service a peer. Sir David Henderson might contest a seat for the East of Kent, or at Lowestoft or Newcastle. (Laughter.) If Lord Roberts had had on occasions in the past to submit his case to a committee appointed by the Army Council to investigate his statements, I think he would very often have been condemned; but as we now know, he would have proved perfectly right. Notwithstanding, I intend to treat the committee with every respect and give them every kind of information. I shall be surprised if the verdict of the committee is not favourable as far as my share in this matter is concerned.

Now I come to the Air Board that has been just appointed. Already I think this step has justified the part which I and others took in urging this matter upon your lordships' House and the country. I am delighted that Lord Curzon and Lord Sydenham are going to be members of this Board. As regards the noble earl, I have seen his work in India, and I have great confidence in him, and it is clearly my duty to support Lord Curzon in every way I can—(hear, hear)—and if I have any knowledge of a special kind to place it unreservedly in his hands. Lord Sydenham also has great experience.

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As far as I can make out, the Air Board is the Montagu Committee, if I may use the term, with some added advantages. It has a Cabinet Minister in the chair, which is a great advantage, and, secondly, it could lay down an air policy, and it seems to me a melancholy thing that only now in the twenty-second month of the war we should be beginning to lay down an air policy. That fact alone would justify anything I may have said or done with a view of getting a better administration of the Air Service. But supposing Lord Curzon disagrees with the Air Board on a question of policy. He would make representations to the Admiralty or the War Office and these two Departments would be advised by the very people who had disagreed with him. He would then appeal to the War Committee, on which he would meet Mr. Balfour and Lord Kitchener, who were naturally also advised by the same technical experts with whom he had already disagreed; and they would sit upon him also. (Laughter.) As the next step he would take his case to the Cabinet and then, perhaps, he would meet still greater difficulties and have to face the criticism of the heads of the great departments who had blocked his way upwards. That is not a workable system. I want to see the noble earl master in his own house.

If this Air Board is to do any good at all, it seems to me that he should be not only the head of a great supplying department, but that he should have power to order supplies and base them on the needs of his policy. I wish to say that as the result of pressure some good has already been done, and that I hope what is now to be done will be productive of further good.

In regard to what has to be done in the future I am aware that we shall have to justify fully our demand for a unified system of administration and for an Imperial Air Service. . . . Even if a mistake were made in giving the Air Board more power than it possesses to-day, I do not believe that that would be running half as great a risk as we should be running by going with timid and faltering steps along the path which eventually you will be bound to follow.

Already a step has been taken which has my approval and which Lord Derby also strongly advocated. The Royal Flying Corps has taken over de Keyser's Hotel, and I hope that that shows that Sir David Henderson and his colleagues have in view getting the Air Service more and more free from the trammels of the past. I should like to see a Fifth Lord of the Admiralty—an Air Lord, to represent the views of those interested in naval aviation. Eventually a fully fledged Air Ministry must come out of this; sooner or later the Imperial aspect of the Air Service will arise. I know that already Australia has taken the matter up, and that a great many of the leading men of Canada are seriously considering the idea. Thus the Air Service cannot be for this country alone. It must be an Imperial Air Service.

All over the world the question of the supremacy of the air is being anxiously debated. In the United States there is an Air Bill before the Congress now. Individual States are organising air services. I say deliberately that the first nation which achieves anything like supremacy in the air will have an immense advantage in war over any other.

I will not reveal what we have done at the front; but I say without fear of contradiction that we have not got supremacy at the front. I do not agree with the declaration made by Mr. Bonar Law in the House of Commons the other day that we had supremacy at the front and maintained it ever since. I prefer the fairer declaration of Mr. Tennant, who said on March 28th that at the moment the majority of the German aeroplanes were probably faster than ours, but that this state of affairs was being gradually altered. I think Mr. Bonar Law went far beyond what he was justified in saying.

I know it is difficult to get a Government Department to look far ahead. For a Government Department "now" is never the appointed day. If you look back upon any of the great movements of the past you will find that the official world is always the last to accept the facts of the day. We might have had all the rights of inventions in this country for a paltry sum of money if there was any foresight in a Government Department. The same kind of official complacency exists to-day. In a time of war this state of mind is more serious than it would be in time of peace. There is a great risk in delay. We are only on the threshold of great developments in aerial warfare. . . . The war is fast becoming one of exhaustion and stagnation. Each side is losing vast numbers of men. Aerial warfare can be waged with a less expenditure of men and better results. For 5,000 aeroplanes, with two men in each, you would want only 10,000 men. With aeroplanes you could do more damage to the enemy with a smaller number of men than you could do in any way on land. I must confess that at times I feel like one standing at the curtained window of a room in which a sleeper lies in bed. I try to draw the curtain back, and the sleeper turns lazily over and says, "Don't draw the curtains yet; it will keep me from sleeping." That is the attitude of people in official circles. They say, "What a horrid thing war in the air will be. Why cannot war go on in the nice old-fashioned gentlemanly and courteous way?" But the enemy will not wait and accommodate themselves to those ideas.

The longer the war goes on the clearer it becomes that we must pay more attention to aerial warfare. Whether we look to the

daily increasing accounts of combats in the air or to the enormous strides that are being made in the development of the aeroplane, we must see that this tendency is inevitable. We cannot successfully cope with that state of things so long as we have disorganisation and want of concentration and jealousy and friction between the two great arms of the Service. I tell you once more that you cannot win in the air with divided forces. I believe that every nation will before long be forced to create an Air Ministry by that sheer necessity which knows no law, which regards no precedent, and which fears no Government. . . . You need at home just as much as at the front more concentration, more courage, more force.

I am confident that, if we realise this peril now, the Air Minister of the future will have an easier task than the noble lord has now. He will be able, I hope, to echo that phrase of the psalm, "Thou shalt not be afraid for the terror by night, nor for the arrow that flieth by day." He will be able to assure his country that they need not be afraid of dirigible or aeroplane, and I hope he will be able to show you that your guardian angels, your own aircraft, will be ready to defend your homes and keep your country inviolate. (Cheers.)

Viscount Milner: The last thing I should wish to appear to be is a jack-of-all-trades, and I must confess I approach this subject with all the intense interest which its immense public importance imposes on all of us, but without any claim to be more than a layman on the subject. A number of your lordships who are anxious to speak possess greater expert knowledge than I do, and I cannot imagine why none of them was willing to undertake to second the motion. I do so gladly for two reasons. The first is the deep impression I have of the importance and extreme urgency of the question, and the second is my conviction that the present opportunity is one which should not be lost for eliciting from the Government an authoritative statement of what their policy is and what the board of which the noble lord opposite is chairman is exactly intended to do. I hope that comparatively little time will be spent to-night in deploring the laches and mistakes of the past, and that some progress will be made in seeing our way in the future.

The **Earl of Derby** said he was afraid he came under the category to which the noble lord said he did not wish to belong—a jack-of-all-trades—but having been connected with a previous Committee he hoped he might be allowed to say a few words.

When he had the honour of being the Financial Secretary at the War Office under Lord Midleton there was at the time at the War Office a general officer whom personally he had always looked upon as one of the most brilliant officers who had ever been in His Majesty's Army—Sir Henry Brackenbury. (Cheers.) There was a discussion one day on the provision of sheds at Aldershot for dirigible balloons. He (Lord Derby) had taken the line that this was an unnecessary expense, and Sir Henry Brackenbury came to his room, and he would never forget the words he used:—"I wish you would help me to get this through. I shall not live to see it. You may; but I believe that England is more in danger from the air than she has ever been since the Spanish Armada." (Hear, hear.) That seemed to him to show the most extraordinary foresight. He was sorry to say that, although he thought he did support Sir Henry Brackenbury, after that he was rather in the position of the sleeper to whom Lord Montagu had alluded. He turned over and went to sleep again, and did not take the active interest in the Air Service which the noble lord himself had done.

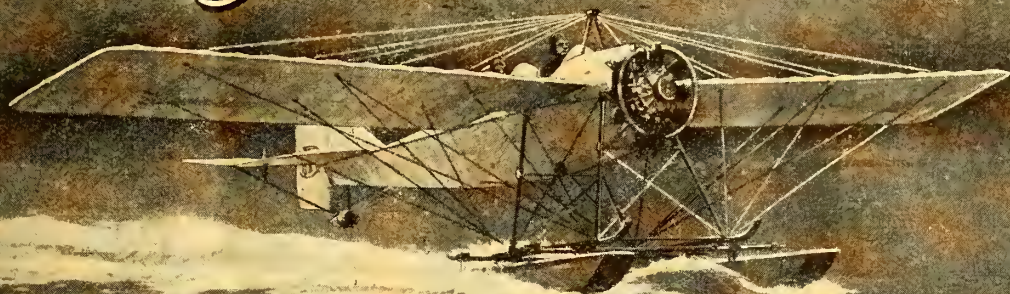
Although there had been spasmodic interest nobody looking back could say that there was anybody in the War Office or the Admiralty who really took a big view of what was necessary for the aircraft or put it forward as essential for our welfare, and really it was left actually to a particular portion of the public Press to bring the whole question of aeronautics most prominently before the public. In his opinion if it had not been for that spirit of emulation which was secured by large prizes and which gave the opportunity to firms not to cater for Army or Navy, but to cater for what he would call commercial and sporting purposes, he was perfectly certain we should not have been in the same position—even though it might not be as good as we wished at the present moment—for securing the aircraft we had as a matter of fact got.

As to the future, he, in the main, entirely agreed with Lord Montagu, speaking as to the general principle on which the organising of the Air Service should be run. He was not so certain as Lord Montagu was that the change could be made at the present moment. He saw the difficulty of the proposal for amalgamation at the present moment. They would have to alter the whole of the rates of pay and they would have to alter the discipline. It was necessary to think out more carefully than was possible at this moment on what system men would be taken into the Flying Corps. The flying life of a man was comparatively short; as a rule, he supposed, a man ceased actual flying by the time he was 30 years old. [The best men are generally at their best between 30 and 35.—Ed.]

Lord Montagu remarked that this depended very much upon the individual. Some men were young at 50 years, others were old at 30. [The late S. F. Cody was over 50.—Ed.]

The **Earl of Derby**, resuming, said the committee of which he was the retiring chairman were told to co-ordinate the designs of machines and the places of their manufacture. It was absolutely

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essential that that work for both the Army and the Navy should be carried on in the same building, but that arrangement was negated. He was able to secure one small advantage, as he hoped it would prove, to Lord Curzon. Sir David Henderson, who met him in every possible way, at his request got the Army Council to appoint a committee, with Sir R. Burbidge as the chairman, to inquire into the working of the Royal Aircraft Factory at Farnham. Notwithstanding that he was chairman of the committee, he could only get that committee of inquiry appointed by the good will of Sir D. Henderson and the Army Council, although it was essential that the matter should be inquired into.

The chief difficulty which it seemed to him that Lord Curzon would find was that no definite air service policy was laid down for the Army and for the Navy. He hoped that his noble friend, as a member of the Cabinet, would be able to secure such a definite policy to which the Army and the Navy could work with the energy which all knew that those services could display. This House had not had the advantage of hearing an exact statement of the position of all the members of the new committee; but it seemed to him that what happened to the committee of which he was the chairman was happening to Lord Curzon's Committee, and that the War Office was getting more power upon it than was the Admiralty.

Earl Curzon said it was one of the conditions of the composition of the Board that the senior representative of the Admiralty was to be a member of the Board of Admiralty, just as General Sir D. Henderson was a member of the Army Council. It was in that capacity that the third Sea Lord, Rear-Admiral Tudor, attended a meeting of the Board yesterday.

The **Earl of Derby** replied that he had understood from the statement made in the House of Commons that the representative of the Admiralty was to attend the Board of Admiralty only when air matters were discussed. He was glad that the noble earl had been appointed the chairman, and he wished him all possible success in that position because that meant success to our armies in the field. (Cheers.)

The **Marquis of Crewe**: It seems almost to have been implied that the Government has shown and is continuing to show complete and most unworthy indifference to the future of the Air Service. My noble friend who spoke last gave us, I think, rather more credit for doing our best to bring about as much improvement as we can, in particular, by the appointment of a new Air Board with Lord Curzon to preside over it. As regards the composition of that Board, one or two points ought to be made clear.

Lord Montagu spoke of the position my noble friend would be placed in if he did not agree with the other members of his Board. My noble friend cannot be placed in that position. This is not a Board that votes; it simply advises my noble friend. If he disagrees with them, he has his own way. It is, of course, possible for the representative of one of the departments to differ with my noble friend. But there is no question of my noble friend being outvoted, and it is therefore not true to state that he is not master in his own house. He is not master in other people's houses—the War Office and the Admiralty—but so far as his own Board is concerned he is supreme, subject to the appeal to the War Committee which I have already described.

I confess I had been under the impression that Lord Montagu's and Lord Derby's resignations of their functions had been somewhat hurried and might at least have been delayed. They imagined when they joined the Board that their functions would be of a more far-reaching character than proved to be the case. I have no right to ask whether either of the noble lords made any attempt to get those functions enlarged. That is not my point, except in so far as it might conceivably affect the opinion which may be held as to whether their resignation was absolutely necessary. [They resigned rather than "muddle through," and for that reason deserve the nation's gratitude.—Ed.]

Lord Montagu puts the future of aircraft very high. Difficulties in ordinary peace times would attend the attempt to increase our air fleet on a very large scale. Whilst willing to pay a certain sum for national defence, people would not pay an unlimited amount. If my noble friend's visions were realised and the Air Service became the prime object of attention for purposes of national defence, both the War Office and the Admiralty Votes might suffer. It is not possible for us to accept the motion, the terms of which suggest something considerably beyond what the Government have done in creating new power.

Lord Northcliffe said: I should not trouble your lordships at so late an hour did I not feel that in all these discussions we have lost sight of the urgent need for speed in these matters. I am sure, however, that this somewhat shadowy Board must develop into an Air Ministry. As one noble lord remarked, "It will come from outside pressure." Personally, I have criticised the composition of this Board, but I entirely agree with the noble viscount, Lord Milner, that we must sink our differences and give it the utmost support in our power, and for that reason I am attending the Committee next Friday. (Hear, hear.)

There are several things to my mind absolutely essential for the success of the Board. The first is that it should have its own Board of Invention. At the present time, to my knowledge, doubtless owing to the great pressure of the time, inventors who may have revolutionary and beneficent schemes in their possession have to wait for weeks and for months before they can get a decision.

(Hear, hear.) It happens that the particular machine we are discussing to-night was invented not by aeronauts, but by two young men who were bicycle repairers. They published their scheme to the world, they communicated with the great aeronautical societies of the world, and no notice was taken of them. In the same way it is more than possible that one or two or three of the great revolutions necessary for flying machines may be in the mind of some person in this country to-day.

Another suggestion I make is that much greater encouragement be given to manufacturers. A few weeks ago I knew of a factory that was crying for work. We cannot expect to build up establishments to enable us to cope with the comparatively small German output—small by comparison with what we shall certainly require—unless the Government offer financial assistance to worthy manufacturers able to guarantee a proper output.

The system of construction in Germany is to give out the work in part to manufacturers all over the Empire. These parts are then assembled at great central factories, with the result that each part of an aeroplane is produced by a specialist. That is not the case here. We give orders for aeroplanes to numbers of manufacturers and they turn out aeroplanes as good as any in the world, but they are produced to my knowledge more slowly, and I should imagine at a greater cost.

Yet another suggestion I may be allowed to make is better and increased provision for the training of flying men. This is the time of year when men can be taught flying in the greatest numbers, and in half the time that is required in the windy months of winter. I think it is so urgent that we should increase our flying men, and as rapidly as possible, that I think we ought to adopt the policy inaugurated by the practical inventors of the aeroplane, who, when they came to Europe and found ours a difficult country to fly in by reason of the wind, took a careful look round the likely places in Europe and settled to teach Frenchmen to fly, and chose Pau, close to the Pyrenees, because they knew it was almost the most windless place near any great military centre. I believe if we defer the training of large bodies of men till the autumn and winter we shall be lamentably short next year, when there will be a great need.

We have proved already in this war that the machines are sometimes inferior and sometimes superior, but we have proved that from the beginning of flying we have had a national aptitude for it. Unfortunately we have not shown that interest in this most vital question to our nation that we should, but I do think that our new Air Minister, for such I conceive him to be, such I think the Germans will make him, could do no better service than, first, to encourage inventions, secondly, to develop manufacture, and, thirdly, to provide far greater training facilities for our flying men. (Cheers.)

(The Debate was here adjourned till the morrow.)

On May 24th **Viscount Galway** resumed the adjourned debate on the motion of the Lord Montagu of Beaulieu. He said that so far as he could gather we had not yet got the fleet of airships which had been promised. He urged on the new Board to consider whether more use ought not to be made of lighter-than-air machines. He congratulated the President of the Board on not having any lawyers on that body. (Laughter.) He also urged that for carrying out the aerial service they must look to the young men. The more they were trusted the greater would be the benefit to this country.

Lord Grimthorpe observed that if the success of the new Board depended, as Lord Montagu had suggested, on the chairman being master in his own house, they might regard the Board's success under Lord Curzon's chairmanship as assured. An Air Service was of more importance to us than to any other Power, and for us supremacy in the air was as essential for safety as supremacy at sea.

Criticising existing arrangements, he said that the senior officers in the Service necessarily had not the same practical experience as the junior officers, and had not had proper training. This incapacitated them from taking intelligent command. They were transferred from duties they knew into a service of which they had little knowledge, and were put in command over the heads of other people who had the knowledge. There resulted friction, misunderstanding, and inefficiency. There was a danger of the repression of the junior officers' qualities. He hoped Lord Curzon would not be daunted by difficulties, and he insisted that the country must now have a separate service for the air.

Lord Beresford said they were going to have an Air Board that would differentiate between the services and so make the Air Service efficient. It was very easy to promote friction, but it was also easy to promote good comradeship. There was no reason why they should not take officers and men from the two services or from any other position. With regard to the shortage of air vessels, it was more dangerous to the Fleet than it was to the Army.

Everything connected with the Air Service or with the scientific side of it ought to be under the Board, and it was clear it should be able to buy its own material, make its own designs, do all its own construction, and have the entire training of the three people—the pilot, the observer, and the artisan—who were necessary for every aircraft. He urged the noble Earl to scrap all useless machines. You might have a thing to-day which would be obsolete in four months' time. We began badly, ordering an



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enormous number of machines without trying them. We had ordered 850 Curtiss (American) machines at the cost of over a million and a half, and no date was mentioned for delivery. He asked what had become of the Handley-Page type of machine and the Sparrow. They ought to be scrapped at once. He hoped the Government would show foresight, at last, in the matter of the Air Service.

Let them begin by making out the respective duties which the Army and the Navy had to do; train the Air Service as a whole and then draft the men into the Army and the Navy as required; get the best designs possible and prove the worth of the machines before ordering so many, as was the case in the past.

Viscount Haldane said the moral of the whole situation with which the country was confronted was the consequence of the neglect of the maxim, "Think first before you act." There was a good deal of talk about the application of science, as though we could go to somebody for ready-made ideas and then use them. It was trained minds that were wanted, and those could only be got by giving up the national habit of paying no attention to ideas. He had read speeches in which it was said that the War Office and Admiralty made no use of science. That was nonsense.

He was glad the Government had taken the course not of setting up an Air Ministry, which had to do something without knowing distinctly all that it had to do, but a Board which was to survey the ground and determine what were to be the functions of the Air Service. He entirely agreed with what had been said as to the tremendous importance which the Air Service would assume in warfare. But that would not arise in the course of the present war. It was a matter of the not far distant future.

Lord Northcliffe had said yesterday very truly that there was a great waste in one manufacturer making all the parts of a machine, and that the parts should be distributed. He thought that was very important. As regarded various parts, there was much that could be standardised provided they knew exactly what the part was.

Having been War Minister, he could have wished that the progress had been quicker. But the want of ideas and of scientific knowledge at that time was appalling. He saw some very distinguished inventors, including the brothers Wright. Whilst he admired the skill of Messrs. Wright, he saw that their machine no more than any other was based on accurate, extensive scientific knowledge. He read specifications by the pound and saw the best people we had in those days. He was driven to despair. What he saw was purely empiricism. Lord Rayleigh was persuaded to preside over a committee of experts to work out problems. They gave their attention to the structure of the atmosphere, the relation of speed and weight, and questions of material, particularly the material of lighter-than-air machines. In the design of airships and aeroplanes, unless we had knowledge and training behind us, we could not cope with the new situations which were being imposed on us by an enemy as fertile in science as we were.

As regarded aeroplanes, as far as he could gather, he could not admit that progress had not been rapid. But in airships we had been miserable. For years before the war German knowledge was forging an engine against us more formidable than the shells and high explosives she had employed in the war. She had been training her artisans on a scale and in a fashion we did not realise. The country would find itself after the war up against the results of the German educational system, but it would not be able to say that it had received no warning. He hoped the air service was going to teach the country the practical value of science.

Earl Curzon: May I say how grateful my colleagues and I are for the very kind and even generous reception which has been given to the creation and composition of the Board by every speaker?

I think that anyone who has studied the debates in this and the other House will have arrived at the conclusion that the Air Service is one of which the nation has every reason to be proud. From almost humble beginnings at the commencement of the war it has risen to very formidable strength. It employs tens of thousands of men, and thousands of machines, and great things have been accomplished by it. In initiative, enterprise, and courage our aviators are second to none in the world. (Cheers.)

As regards the defence of our own shores, if the enemy has not desisted from these murderous raids—and though he may be contemplating something bigger—yet at the same time it cannot be denied that the defences both of London and the country are much more formidable than they were a short time ago.

There remains a great deal to be done, particularly on the administrative side, both in co-ordinating effort, in supplying machines, and in the organisation of material. . . . On the last occasion when the question of the air came before your lordships' House, an attempt had been made to introduce greater co-ordination into our system, to prevent the competition and overlapping known to exist between the two great fighting departments, and particularly in regard to design and supply. I entirely agree with the two members of that Committee who addressed your lordships last evening—I refer to Lord Derby and Lord Montagu—that the Committee was hampered from the start, and, in my

belief, foredoomed to failure, by the exceedingly restricted nature of the reference. They did a great deal of useful work and cleared away many misunderstandings. . . . I agree with Lord Derby that it was more than doubtful whether the committee was empowered or expected to discuss policy. It certainly had no effective authority to arrive at a decision.

There were in reality only two solutions before the Government. One was the creation straightway of a separate Air Department with an Air Minister at its head; the other the creation of a new authority with substantially larger powers than that enjoyed by Lord Derby's Committee, and much wider instructions. A noble Lord asked why the Derby solution was not adopted. It was because there was not that measure of agreement between the War Office and Admiralty which would have rendered such solution easy. It would have been and indeed was resisted by the Admiralty. The introduction of so large a scheme could, I am convinced, only have been accomplished at the present time at the cost of dislocation, of friction, of the rupture of long standing ties and associations, which would not have been desirable at any time, but would have been perilous at this stage of the war.

The utmost that Lord Montagu had to say last night for the adoption of this larger plan was that it was better to be too soon than too late. As a general proposition that is sound, but I submit that, in war time more especially, there is a mean between the two which is better than either too soon or too late, and that is just the right moment. The whole of the contention of this part of my speech is that the present is not the exact moment at which that large change should be effected.

Something has been said by noble lords about the views entertained by the Army and Navy with respect to the use of aircraft by them and of the close connection which that branch of the service bears to their work. Although I do not altogether share those views, I think it is only fair that the point of view of the departments concerned should be borne in mind. Both these departments look upon air-work as an integral part of their policy and their organisation.

I would point out in passing that there is no analogy with the Ministry of Munitions. The Minister of Munitions was appointed as a Minister of Supply for a particular class of article for the Army. As Minister of Munitions he has nothing to do with strategy or policy, which marks the case off very sharply from the Air Service. Then there are practical objections arising out of pay and discipline to the organisation of a single Air Service at the present time.

I should like to add that I think such an Air Ministry or Air Department is destined to come. Before many years have passed—it may even be sooner—I paint to myself a dream of a single service under a single head, under a single roof, with a single organisation. Such a unification I cannot believe to be beyond the administrative genius of our race. But if I am right in that, I would sooner see it come—as in the past few months I have seen military compulsion come—as the result of a concordat between all those who are interested in the matter, as the result of a cordial acceptance of the principle by both services and both departments, with the avowed support of the Secretary of State for War and the First Lord of the Admiralty.

The Board which has been appointed will undoubtedly hold this consummation in view. It is one of our duties to explore the ground and to examine the possibilities of such a solution. For the reasons I have stated I cannot accept the motion of my noble Friend Lord Montagu. It is really one, rather cleverly disguised, for the immediate creation of an Air Department.

Lord Montagu: I particularly disclaimed any idea of an Air Ministry at present.

Earl Curzon: If I may take the terms of the motion, my noble Friend is really proposing that there should be no longer divided control or responsibility of two separate Departments, and that both men and material should at once be concentrated under one control.

Lord Montagu: For the purposes of supply.

Earl Curzon: I would really ask the noble Lord to consider the position of the Board and myself in the matter. He has told us that he means to give us his support, that he does not want to embarrass me, and at the same time he is going to ask us to vote for a motion which practically condemns the organisation of the Department for which I am responsible, and pronounces in favour of a revolution which for the reasons I have given it is impossible at the moment to carry out. If the noble Lord carries his motion to a division, I shall ask the House, out of regard for the work which we have undertaken in circumstances of great difficulty, to be kind enough not to follow him into the lobby.

The Board differs substantially from Lord Derby's Committee in composition, intention, and in powers. It is directly charged with thinking out and formulating a policy and making recommendations to the War Committee of the Cabinet. For those reasons it was decided that the Board should have as president a Cabinet Minister, not because a Cabinet Minister knows more—many people think he knows less—than other men, but because a Cabinet Minister would be able to examine impartially and arbitrate between the claims of the two departments, confer on equal terms with the Parliamentary chiefs of those departments,

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take his case into the Cabinet and argue it, if desired, and in the last resort have it appear on the schedule of the final court of appeal, the War Committee of the Cabinet.

It is not a post which any public man would welcome, and I venture to think it is not a post which any public man could refuse. I am bound to say that among the correspondence I have received since my acceptance of the office there are far more letters of condolence than of congratulation (laughter), and I feel I shall need all the sympathy and support I can get.

Mr. Churchill predicts that the future of the Board will either be one of harmless impotence or a continuation of first-class rows. At all events one chance of disturbance has been eliminated by the disappearance of my right hon. Friend from the ranks of the Government. (Laughter.) For had I come into collision with a Minister of so vivid a personality, with so great an interest in the Air Service, and with such memories of contributions to that service by himself as are enjoyed by my right hon. Friend, I shudder to think what might have been my fate.

Whatever my disqualifications are, in interest and enthusiasm in the work of the air I am second to none. Ever since the beginning of the war I have felt convinced that the Air Service has a great feature—not merely in determining the issues of the war, but in the part which it will play in the defence of this country and in the warfare of the future. I believe the time will come when the air arm will play a part in warfare scarcely conceivable now.

I am asked to say something about the composition of the Board. It was decided there should be placed on it two representatives respectively of the Admiralty and the War Office, and in order that those representatives should speak with the highest authority on behalf of their departments it was decided that the senior officer representing the Admiralty should be a member of the Board of Admiralty or attached to the Board of Admiralty for the purpose; and that the senior military representative should have a seat on the Army Council. Accordingly the two representatives of the Admiralty now sitting are the Third Sea Lord, Admiral Tudor, and Admiral Vaughan-Lee. The two representatives of the War Office are Sir David Henderson, Director-General of Aeronautics, and General Brancker.

Then there are the independent members. I should have been very reluctant to accept the office had I not had the advantage of the co-operation of Lord Sydenham. I cannot say how fortunate we are to have obtained the services of a man of such wide experience in varied capacities. The representative of the Board in the House of Commons will be Major Baird.

We have secured a habitation for ourselves in close proximity to the Admiralty and the War Office, No. 19, Carlton House Terrace. There a modest secretariat has been established, the chief of which is the permanent secretary, being a very capable civilian, Sir Paul Harvey, who has had service in India, the War Office, Egypt, and elsewhere, and as assistant secretary to him there has been nominated Commander Groves, who has an almost unique experience of flying on the naval side, and who has been brought back for the purpose from Dunkirk, where he had been the right-hand man of Admiral Bacon.

I am glad Lord Northcliffe is to be one of the first to place his views before us. Lord Montagu is going to do the same, Lord Haldane is going to do the same. I hope we shall at once establish contact with all authorities and experts, and we shall take the earliest steps to get into communication with scientific bodies. One of our instructions is to get into touch with various bodies of inventors who have been experimenting since the war broke out, and we shall regard as one of our foremost duties the exploration of the path of invention.

The Board is intended to be an advisory Board. No question will be decided by voting. The situation therefore cannot arise in which the president will be overruled by his colleagues, nor indeed can a situation arise in which the Admiralty and the War Office will vote against each other or come to a direct issue. What, I take it, will happen will be this. The president, acting in close consultation with his colleagues, will endeavour to arrive at decisions on various subjects. If the representatives of the Admiralty or the War Office on the Board feel that the decisions to which he comes are inconsistent with the prerogatives, functions or conception of duty entertained by their departments, there will be nothing whatever to prevent them from acquainting the Army Council and the Board of Admiralty with the matter, and if they find their action is supported by the Secretary for War and the First Lord, I imagine the next step will be for these high officers to discuss the matter with the President of the Board. In the event of their not agreeing, the reference to the War Committee, the final court of appeal, will take place. The procedure is simple and ought not to be productive of friction if worked with a reasonable amount of tact. It is sufficiently elastic and not tied down too closely by narrow rules of operation.

We shall exert ourselves to continue the work already begun by Lord Derby's committee in preventing rivalry and overlapping between the two departments. Then our desire is to examine—indeed, we have already commenced—one by one such questions as the position in respect of machines and men at the front and in the various theatres of war, the organisation of long-range offen-

sive operations, the defence of this country by aircraft and guns against hostile aeroplanes, the use and development of lighter-than-air machines, the supply of the best types of aeroplanes and engines, the armament of aircraft, national air factories, new inventions, and provision for flying grounds and training facilities. Those are the questions which I think we shall attempt to examine at a very early date. Arising out of these will, of course, spring the necessity for attempting to formulate a policy for the two Services and the two departments and providing them with machinery to carry that out.

I pass to a rather more remote category of questions. In the background we shall certainly hold in view, though I think it would be unwise to pronounce upon them until we have acquired a good deal of experience, such questions as those named by Lord Derby last night—the possibility or desirability of the amalgamation of the designing and contract branches; also of the respective staffs of the two departments, the formation of a national Air Service, and the institution of a joint national factory. Those are questions on which it would be absolutely dangerous for the Government to rush to a conclusion. In the further background there would always be looming the question of the possibility or desirability at a future date of creating a single department under a single Minister.

The Board is an experiment, but it is a sincere and honest experiment which its members mean to turn, so far as they can, to the best account. I solicit the support of the two great Departments of the Army and the Navy, with whom the Board have neither desire nor object in coming in any way into conflict, whose battles we shall in many cases be fighting ourselves, and whose interests we desire to serve. Finally I ask the sympathy both of the experts who know so much and of the public at large who know so little in the endeavour to make the Air Service one which will not merely contribute to success in the war in which we are engaged, but shall be a potent instrument of national strength in the future. (Cheers.)

Lord Montagu: The debate has been very useful, even if it has done nothing else than produce the very clear speech of Lord Curzon. His difficulties in administration will be greater, I think, than he anticipates. I am afraid I cannot take quite the same hopeful view of his relations with the Admiralty and the War Office that he takes. Perhaps he may be successful if he remembers the Roman maxim, *divide et impera*. If he can get one department on his side he can probably carry his point.

Letters which have been received show that a bad state of things still exists. I have been given a letter from a young officer which shows what a heartbreaking state of things those young officers sometimes have to meet. I will read, though I could not approve all his words. He says:—

“The machines left Gosport last Saturday—twelve in number—at the present moment three remain intact. They set out for Dover in fine weather. One blew off a cylinder head, which crashed through the planes, shortly after starting, but it managed to struggle to Shoreham on the other eight cylinders and landed safely. [Surely there is some error here. Is he referring to a 9-cylinder rotary (most of which are good when properly looked after) or to an 8-cylinder R.A.F.? In which case did he mean 7 cylinders were left? Anyhow, the tale is dolorous enough.—Ed.]

“Another developed engine trouble and turned back, but had to land on the way and was smashed. A third had engine trouble farther afield and landing on unfavourable ground was wrecked completely. A snowstorm overtook a fourth, which was also damaged—extent unknown. Three more had engine breakdowns—two being entirely ‘done in,’ but the other was more successful and only smashed the under-carriage. An eighth arrived at Dover without trouble, but was smashed to atoms on landing. This was our best pilot, too. He is in hospital now! Four landed safely at Dover and crossed the Channel next day. Three of them got to G.H.Q. without mishap, but the other dissolved itself into a heap of wreckage in the middle of the aerodrome! So that’s that!

“Twelve started—four arrived—three only are still able to fly! Two, possibly three, can be repaired. The rest are gone for ever, and one pilot (the best) in hospital. Oh! listen to my tale of woe! Heaven knows what will happen to us now—poor old 29! Perhaps the ‘powers that be’ will begin faintly to realise what the youngest subaltern in the R.F.C. has known all along—viz., that a certain engine is no good.”

As to the personnel of the Committee, I understand that Admiral Tudor, the Third Sea Lord, is one representative of the Admiralty, and that the other is to be Admiral Vaughan-Lee. Without wishing to reflect upon either of them, I am sure that they would be the last to claim any knowledge of aviation, and I suggest that, at any rate, one of the representatives of the Admiralty should have such technical knowledge. General Sir D. Henderson has technical knowledge; but about him there is this anomaly, that he is General Officer Commanding the Royal Flying Corps and at the same time a member of the Army Council. It is an unusual combination of positions, for he has to do both the thinking and the administrative work. I suggest that General Henderson is already very much over-worked, and that the Government should let him do one thing or the other; I think it is impossible for any

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man to do both perfectly. The Army Council, I am given to understand, is one of the delightful fictions of our administrative life—one of the phantoms which is said to exist, but really does not. It is said to meet very rarely. Sir David Henderson may be to the Army Council what the Archbishop of Canterbury is as a member of the Board of Trade—he may add moral weight to it and act as a sky pilot.

The expenditure on aviation is unlike money lost in war. Millions of money have been spent upon guns, ships, and munitions, and most of the expenditure on war is utterly wasted and is for the destruction of mankind. The expenditure on aviation in war will accelerate the progress of aviation generally, and is therefore not only for the purpose of destruction, but will be for the benefit of humanity afterwards. That is an important point of difference.

In framing my motion I particularly excluded from it any

mention of Ministers. It asks for the co-ordination of the supply of men and materials for the Air Service under one head. It goes little, if at all, further than the noble earl himself proposes, and I think the House will do well to place on record the opinion which it expresses. I shall, therefore, divide the House, even if I find only one noble lord to act as a teller with me.

The House was then cleared in order that a division might be taken; but before the question was put Lord Montagu said he found that the sense of the House was against a division, and he would withdraw the motion. The motion was by leave withdrawn.

[One assumes that a straight and honest division, such as one gets in the Lords, if not in the Commons, would have meant a Government defeat, and that for motives of policy the Lords do not yet wish to defeat the Government.—Ed.]

THE IMPERIAL AIR SERVICE SCHEME.

The following letter has been sent by Lord Montagu to the "Times":—

Sir,—Now that the Air Board is established and the Government have made known their plans I feel at liberty to ask you to publish the scheme I submitted to them at the beginning of April last.

That some plan similar to the one I now ask you to print will eventually have to be adopted is, I think, certain.

For the moment we must be content with reform in dribblets and help Lord Curzon.

Yours truly

MONTAGU.

62, Pall Mall, S.W., May 26th.

THE IMPERIAL AIR SERVICE.

BOARD OF AVIATION.

1. President of the Board of Aviation (in the Cabinet).
2. Vice-President (or Parliamentary Secretary).
3. Chief of Naval Aviation.
4. Chief of Military Aviation.
5. Chief of Anti-Aircraft Corps.
6. Director of Research.

(The above form the Board.)

Other Heads of Departments:—Financial Adviser, Director of Construction, Director of Supply and Contracts.

This Board in practice would follow the lines of other so-called Government "Boards," the President being supreme. But in this case the Board should meet frequently for consultative purposes, each member being responsible for his own department. The heads of the departments, not on the Board, would be asked to attend and advise the Board when their departments were affected. The President should have the usual Ministerial powers and he or the Vice-President should represent the Board in Parliament.

In order to promote harmony between the two Services it is suggested that selections for the administrative staff appointments in the new Imperial Air Service should be made as far as possible from representative officers in the present two Services. It is further suggested that to save overlapping and duplication, and to economise as compared with the present system, the following departments, most of which exist in duplicate already in the divided Services, should be amalgamated:—

1. Design.
2. Construction.
3. Inspection.
4. Supply.
5. Contracts.
6. Scientific research.
7. Enlistment, training, and allocation of personnel.
8. Provision of lands and buildings for training.

OBJECTS OF THE BOARD OF AVIATION.

The Board should have for its primary object the handing over of trained men and completed machines for the use of the Army and Navy.

The Chiefs of the Naval and Military Aviation should be responsible for keeping the Board in touch with the plans of the Naval War Staff and of the General Staff. They should specially be responsible for training and provisions for training, including lands and buildings, and also for discipline and equipment, until the personnel and machines are handed over to the Admiralty or War Office for use in the field.

IMPORTANCE OF A SCIENTIFIC BRANCH.

I attach great importance to the scientific side of the Board, and would have a special department for meteorology, map-making, analysis, testing of materials and metals, and the proper conduct of experiments, and I suggest the use of the present Aircraft Factory at Farnborough mainly as an experimental testing factory, where fair play might be given to inventors. The head of this department might, I suggest, be called the Director of Research, and he should be a young civilian with scientific training, but not necessarily an already distinguished scientific man.

It is also important that there should be very careful and rigid inspection of design and construction. Something in the nature of the present aeronautical inspection department should be set up. During the war the Board of Aviation must have certain factories and their outputs allotted to them, in addition to skilled men and necessary materials.

FINANCIAL CONTROL.

The department should have freedom from Treasury control in the matter of details, it being understood that the Treasury sanction shall be obtained for money in round figures, the President and his financial adviser being responsible for the proper expenditure of the money. Proper estimates to be submitted every year, and the financial adviser to be in close touch with the Treasury.

ACCOMMODATION.

It is important from the outset that all personnel should be housed in one building, and I estimate that about 200 rooms would be wanted to start with. This would mean the taking of two floors in such an hotel as the Hotel Victoria in Northumberland Avenue, which is close to the War Office and Admiralty, or the whole of the new building near the Haymarket Theatre, which is said to have about this number of rooms. It should be remembered in connection with this that both the Naval and Military Air Services are now housed in various buildings outside their own offices.

DESIGNATION.

It will be noticed that I suggest that the titles of R.N.A.S. and R.F.C. should be dropped and merged into one common title "The Imperial Air Service." I think the use of the word "Imperial" is very important in view of the fact that not only have the great Dominions taken a large interest in the subject, but during the war they have provided the forces with a considerable number of planes, India being specially noticeable in this respect, having provided from the Punjab alone a gift of £92,000, the price of 60 aeroplanes.

EXECUTIVE.

I propose that there should be no interference whatever with the present Executive in the field, Sir John Jellicoe and Sir Douglas Haig retaining their complete control over all their aircraft.

This draft scheme is put forward as a possible framework on which to build, and not as a plan which cannot be altered. *I desire, however, to urge careful consideration of its outlines, and the adoption of some combined Administration for both Air Services without delay. The position to-day in both Services is unsatisfactory, and the country is suffering. I sincerely believe that increased efficiency, and in the end less cost both of men and money, will result if an Imperial Air Service is constituted under a combined administration.*

April 4th, 1916.

MONTAGU OF BEAULIEU.

THE NEW AIR BOARD.

The first meeting of the New Air Board was held at 19, Carlton House Terrace, on May 26th. Lord Curzon, the President, walked over from his residence, close by, in company with Lord Northcliffe and Sir Paul Hervey, the secretary.

Lord Sydenham was the first arrival, and among others present were Admiral Tudor and Admiral Vaughan-Lee (representing the Admiralty), Sir David Henderson and General Brancker (War Office), and Major Baird, M.P. Lord Derby attended later.

The proceedings were private.

THE INVASIONS OF ENGLAND.

Mr. Samuel, replying to Mr. Kellaway in the House of Commons on May 29th, gave the following figures relating to the number of persons killed in Great Britain by air and sea raids since the war began:—

Three Attacks from the Sea.

KILLED.	
Men	61
Women	40
Children	40

INJURED.

611.

46 Air Raids.

KILLED.	
Men	222
Women	114
Children	73

INJURED.

1,005.

Replying to a supplementary question Mr. Tennant said the number of soldiers and naval men killed was only a comparatively small fraction of the total number.

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NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," May 23rd, 1916.

WAR OFFICE, May 23rd.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Comdr.—Temp. Lieut. R. S. Maxwell, Gen. List, from a Flying Officer, and to be temp. Capt. whilst so empld. (May 11th).

ARMY SERVICE CORPS.—To be temp. Lieut.—Sub-Lieut. C. Wright from R.N. Air Serv. (November 17th).

MEMORANDUM.—Pte. J. Kirsop, from A.S.C., to be temp. Sec. Lieut. for duty with R.F.C. (May 15th).

TERRITORIAL FORCE.—INFANTRY.—HIGHLAND CYCLIST BN.—Lieut. A. J. Carlow is secd. for duty with R.F.C. (May 6th).

* * *

From the "London Gazette" Supplement, May 24th, 1916.

WAR OFFICE, May 24th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—C. D. M. Campbell, from temp. Capt. to be Capt. (May 11th).

* * *

From the "London Gazette" Supplement, May 25th, 1916.

WAR OFFICE, May 25th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Asst. Equipment Officer.—Temp. Sec. Lieut. A. G. Powell, Gen. List (May 13th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lieuts. (on prob.) confirmed in rank.—F. Alexander, A. Champion.

* * *

From the "London Gazette," May 26th, 1916.

WAR OFFICE, May 26th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Comdrs.—From Flying Officers, and to be temp. Capt. whilst so empld.—Sec. Lieut. (temp. Lieut.) W. H. D. Acland, R. 1st Devon Yeo., T.F. (February 15th); temp. Lieut. A. C. Hagon, Gen. List (May 12th); Sec. Lieut. E. W. Leggatt, Wilts R. (May 13th).

Asst. Equipment Officers.—Temp. Sec. Lieut. A. L. Wilson, Gen. List (May 6th); Sec. Lieut. G. Iredell, Spec. Res., Sec. Lieut. F. S. Smith, Spec. Res., temp. Sec. Lieut. L. M. Page, Gen. List (May 18th).

MEMORANDA.—Temp. Lieut. H. J. L. Cappel, A.P. Dept., is transfd. to Gen. List for service with R.F.C. (May 5th).

To be temp. Lieut.—Lieut. G. Frecheville, from R.N.V.R., for duty under Dept. of Mil. Aeronautics (May 3rd).

L.-Cpl. John Palethorpe, from Worc. Yeo., T.F., to be temp. Sec. Lieut. for duty with the R.F.C. (May 27th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lt. (on prob.) F. S. Smith is confirmed in his rank. To be Sec. Lts. (on prob.): Henry H. Burt; April 25th, 1916. William M. Cumming; April 28th, 1916. Lionel B. Ayles; May 1st, 1916.

REGULAR FORCES.—MOTOR MACHINE GUN SERVICE.—Temp. Maj. A. O. French-Brewster relinquishes his commn. on appt. to R.N.A.S. (Oct. 4th).

* * *

From the "London Gazette" Supplement, May 27th, 1916.

WAR OFFICE, May 27th.

REGULAR FORCES.—MEMORANDUM.—To be temp. Sec. Lts. for duty with the R.F.C.: Sergt. A. W. Empson, from A.S.C. (May 1st); Sergt. C. R. Lamrock, from 6th Aust. Light Horse (May 13th).

* * *

From the "London Gazette" Supplement, May 29th, 1916.

WAR OFFICE, May 29th.

REGULAR FORCES.—MEMORANDA.—The following N.C.O.'s and men to be temp. Sec. Lieuts., on prob., for duty with the R.F.C.:—Cpl. E. E. Castle, from R.F.C., L.-Cpl. W. H. Buckridge, from A.S.C., L.-Cpl. C. J. Beatty, from 2nd Canadian Divl. Supply Col., Pte. R. F. Browne, from 2nd Canadian Divl. Headquarters Sub Staff (April 30th); Staff Sgt. B. F. Wood, from A.S.C., Cpl. C. P. Creighton, from 2nd Canadian Divl. Sig. Co., 2nd Cl. Air Mech. L. Taylor, from R.F.C. (May 7th).

COMMANDS AND STAFF.—Dep. Asst. Dir.—Capt. F. C. Jenkins, R.F.C., Spec. Res., from a Squadron Comdr., Mil. Wing, and to relinquish the rank of temp. Maj.; March 27th, 1916.

Staff Capt. Capt. L. V. S. Blacker, Corps of Guides, Ind. Army, from a Balloon Officer, vice Maj. B. Hopkinson, Unattd. List, T.F.; March 27th, 1916. Capt. I. M. Bonham-Carter, North'd. Fus., from a Flight Comdr., in succession to temp. Capt. G. M. R. A. MacSwiney; April 22nd, 1916. Temp. Lieut. H. A. P. Disney, Camb. R., T.F., from an Asst. Equipment Officer, and to be temp. Capt. whilst so empld., vice Maj. C. Mellor, R.E.; May 1st, 1916. Temp. Hon. Capt. J. S. Nicholson, and to be temp. Capt. whilst so empld.; May 8th, 1916. Temp. Capt. L. Sadler, A.S.C., from an Asst. Equipment Officer; May 8th, 1916. Temp. Capt. the Hon. E. E. Charteris; May 8th, 1916.

Staff Lieuts.—Lieut. W. W. W. Reilly, Conn. Rang., and to

be secd., vice Lieut. G. W. Wentworth, Norfolk R.; April 19th, 1916. May 8th, 1916: Sec. Lieut. F. L. Mond, R.F.A., T.F., from a Flying Officer; 2nd Lieut. J. N. Mearns, R.F.C., Spec. Res., from an Asst. Equipment Officer; temp. Capt. R. A. Coote; temp. Sec. Lieut. H. W. Phear, R.A.; Sec. Lieut. M. O. Darby, R.F.C., Spec. Res., from an Asst. Equipment Officer; temp. Sec. Lieut. H. M. Bentley, from an Asst. Equipment Officer; Lieut. (D. O.) C. Mason, R.A.; Capt. C. F. Crabbe, T.F. Res.

ESTABLISHMENTS.—R.F.C.—Squadron Comdr.—Capt. T. F. Rutledge, S.R., from a Flight Comdr., and to be temp. Maj. whilst so empld. (May 15th).

Flight Comdr.—Maj. C. Mellor, R.E. (May 1st, but with seniority from May 25th, 1915).

Flying Officers.—Sec. Lieut. (on prob.) the Hon. B. H. E. Howard, Manch. R., S.R., and to be secd. (Nov. 11th); Sec. Lieut. G. S. Hall, S.R. (May 4th); Lieut. D. M. V. Veitch, 1st D. of York's Own Lrs., Ind. Army (May 9th); temp. Lieut. R. D. Walker, Dorset R., and to be transfd. to the Gen. List; Sec. Lieut. S. E. Faber, S.R.; Lieut. R. H. C. Usher, Wilts R., S.R., and to be secd. (May 10th); Lieut. C. J. W. Darwin, C. Gd.; temp. Lieut. B. T. Collier, Norf. R., and to be transfd. to the Gen. List; Sec. Lieut. A. P. V. Daly, Conn. Rang., S.R., and to be secd.; Sec. Lieut. (on prob.) A. H. Francis, R. Suss. R., S.R., and to be secd.; Sec. Lieut. (on prob.) C. F. Denning, R. W. Surr. R., S.R., and to be secd. (May 11th). Sec. Lieuts., S.R.—W. G. Stewart, T. L. Brennan, P. R. Meredith, I. Curlew.

Flying Officer (Observer).—Temp. Capt. Lord G. H. L. Dundas, Gen. List (May 8th).

MEMORANDUM.—Acting Sgt.-Maj. W. B. Power, from R.F.C., to be Sec. Lieut., for duty with R.F.C. (May 30th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lieuts. (on prob.) confirmed in rank.—P. R. Meredith, W. G. Stewart, T. L. Brennan, G. S. Hall, I. Curlew, S. E. Faber. To be Sec. Lieuts. (on prob.).—H. B. FitzHerbert (May 1st); A. N. David (May 27th).

TERRITORIAL FORCE.—INFANTRY.—R. War. R.—Sec. Lieut. H. M. Probyn is secd. for duty with R.F.C. (May 15th).

Liverpool R.—Sec. Lieut. A. W. Smith is secd. for duty with R.F.C. (April 29th).

* * *

The dispatch issued for publication by the War Office from General Sir Douglas Haig, G.C.B., Commanding-in-Chief, the British Forces in France, and dated from General Headquarters, May 19th, 1916, contains the following references to the work of the R.F.C. :—

In the air there is seldom a day, however bad the weather, when aircraft are not busy reconnoitring, photographing, and observing fire. All this is taking place constantly at any hour of the day or night, and in any part of the line.

While many other units have done excellent work during the period under review, the following have been specially brought to my notice for good work :—

No. 2 Squadron, Royal Flying Corps.

No. 6 Squadron, Royal Flying Corps.

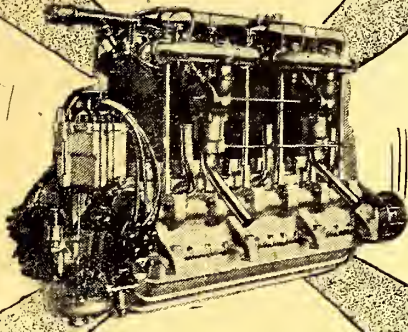
I take this opportunity to bring to notice the admirable work which the Royal Flying Corps has continued to perform, in spite of much unfavourable weather, in carrying out reconnaissance duties, in taking photographs—an important aid to reconnaissance which has been brought to a high pitch of perfection—and in assisting the work of our artillery by registering targets and locating hostile batteries. In the performance of this work they have flown in weather when no hostile aeroplane ventured out, and they have not hesitated to fly low, under fire of the enemy's guns, when their duties made it necessary to do so. They have also carried out a series of bombing raids on hostile aerodromes and points of military importance.

A feature of this period under review has been the increased activity of the enemy's aircraft, in suitable weather. But the enemy's activity has been mainly on his own side of the line, and has aimed chiefly at interrupting the work carried out by our machines. In order to carry out the work in spite of this opposition, which was for a time rendered more effective by the appearance in December of a new and more powerful type of enemy machine, it has been necessary to provide an escort to accompany our reconnaissance aeroplanes, and fighting in the air, which was formerly exceptional, has now become an everyday occurrence.

The observers, no less than the pilots, have done excellent service, and many fine feats have been performed by both.

Developments on the technical side of the Air Service have been no less remarkable and satisfactory than the progress made on the purely military side. Much inventive genius has been displayed; and our equipment for photography, wireless telegraphy, bomb-dropping, and offensive action generally has been immensely improved, while great skill has been shown in keeping the flying machines themselves in good flying condition.

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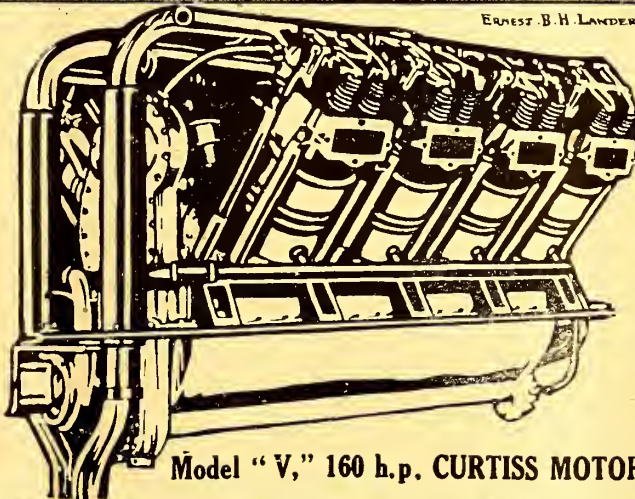
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

[It is with great satisfaction that all who have laboured to increase the efficiency and effectiveness of the R.F.C. will note Sir Douglas Haig's appreciation of recent developments. The dispatch covers the period from December 19th to May 19th, and thus includes precisely those months during which criticism and highly effective reform has been going on.—Ed.]

NAVAL.

The following appointments have been made in the Royal Naval Air Service:—

May 24th.—Temp. Lieut. (R.N.V.R.).—A. C. Wade, to "Wild-fire," addl. (May 22nd).

The following have been entered as Proby. Flight Sub-Lieuts. (temp.), and appointed to "President," addl., for R.N.A.S., seny. of May 28th:—B. A. Millson, E. A. Power, E. S. Goodwin, A. W. I. Ashe, E. J. Crisp, D. F. FitzGibbon, J. D. Haig, E. A. Bennetts, C. W. Cory-Wright, and L. E. Lander.

The following have been entered as Temp. Sub-Lieuts. (R.N.V.R.), seny. as stated:—R. F. Osborne, May 21st; E. C. Blake, May 22nd, and appointed to "President," additional, for R.N.A.S.; T. R. Garrigan, May 22nd, and appointed to "President," additional, for R.N.A.S., May 29th.

May 25th.—Engr. Lieut.-Commr.—A. Leamon-Berry, to "President," additional, for R.N.A.S. (May 23rd).

Mr. L. C. Pincott, entered as Proby. Flt. Sub-Lieut. (temp.), seny. of May 28th, and apptd. to "President," addl. for R.N.A.S.

Mr. F. Webb, granted temp. commission as Lieut. (R.N.V.R.), seny. of May 23rd, and apptd. to "President," addl., for R.N.A.S.

May 27th.—Proby. Flight Sub-Lieut. (temp.).—A. P. Hadow, granted a temp. commission as Lieut. (R.N.R.), seny. of May 25th (appt. as Proby. Flight Sub-Lieut. terminated).

Mr. R. F. Bentley, entered as Sub-Lieut. (R.N.V.R.), temp., seny. of May 16th.

May 30th.—The following have been entered as Proby. Flight Sub-Lieuts. (temp.).—H. J. Bath and F. H. Prime, seny. of May 1st, and appointed to "President," additional, for R.N.A.S., from same date; J. E. Potvin and G. R. Halliday, seny. of April 29th, and appointed to "President," additional, for R.N.A.S. (May 7th).

* * *

THE CASUALTY LIST.

Reported May 26th.

ACCIDENTALLY INJURED.—May 21st.—Forgan-Potts, Flight Lieutenant John, R.N.

* * *

It is reported that an instruction balloon descended somewhat suddenly near Woolwich on May 23rd. Apparently a good deal of gas was suddenly lost, and the balloon came down so low over Charlton that the trail-rope dragged on the ground. Finally the whole apparatus caught in a tree, and a party of soldiers pulled it to the ground. No one was hurt.

Another balloon descended in Mortimer Road, East Ham, on May 26th. The only casualty was a policeman, who was slightly gassed in assisting to deflate the balloon.

A Naval airship flew over Dublin on May 26th and attracted much attention. After hovering over the city for some time the aircraft disappeared seaward. This is the first airship to be seen in Dublin.

* * *

The marriage arranged between Lieutenant-Commander Philip Shepherd, R.N. and R.N.A.S., and Miss Jessie Ann Campbell took place on May 26th, at Holy Trinity Church, Eastbourne. About fifty pilots formed a guard of honour at the church, and afterwards towed the happy couple home in a carriage.

Lieut.-Commander Shepherd was one of the earliest naval officers to join the R.N.A.S., and quickly showed his ability to impart to others the knowledge he had gained himself. As a result, he was sent to the Central Flying School when that establishment was formed under Captain (now Commodore) Godfrey Paine, R.N., and Major (now Major-General) Trenchard. He commanded a "flight" there till some time after war broke out, and after a brief tour of service abroad he was put in command of the Eastbourne Aerodrome, on the appointment of Lieut. Bernard Fowler, the successful founder of the school, to another station. Lieut.-Commander Shepherd has worked strenuously at the training of pilots, and has turned out a number of very able fliers.

His many friends, in and out of the Service, will wish him and his bride long life and happiness, and further success in the good work he is doing for the country.

* * *

A "Daily Telegraph" correspondent, in an article on the naval situation generally, says:—

"Lastly, a word or two must be written about one of our naval aerodromes on the East Coast. It was reached after a quick run in a motor launch. Everything about it smacked of enthusiasm and efficiency. Rain of tropical violence interfered with the display which had been projected, but a couple of pilots went up and did some smart flying. One heard not a word of 'grousing' about the machines. On the contrary, pilots waxed warm in their praise of a particular 'one-seater,' equipped with the Lewis gun, which Lord Hugh Cecil told the House of Commons the other day is 'the envy of Europe.' It seems that in the Service they call this little seaplane 'The Bullet.'" [It is interesting to hear that reform is making such progress, and it is still more interesting to see that the Naval pilots are so pleased with a machine of which the Army's technical advisers did not approve at the beginning of the war.—Ed.]

MILITARY.

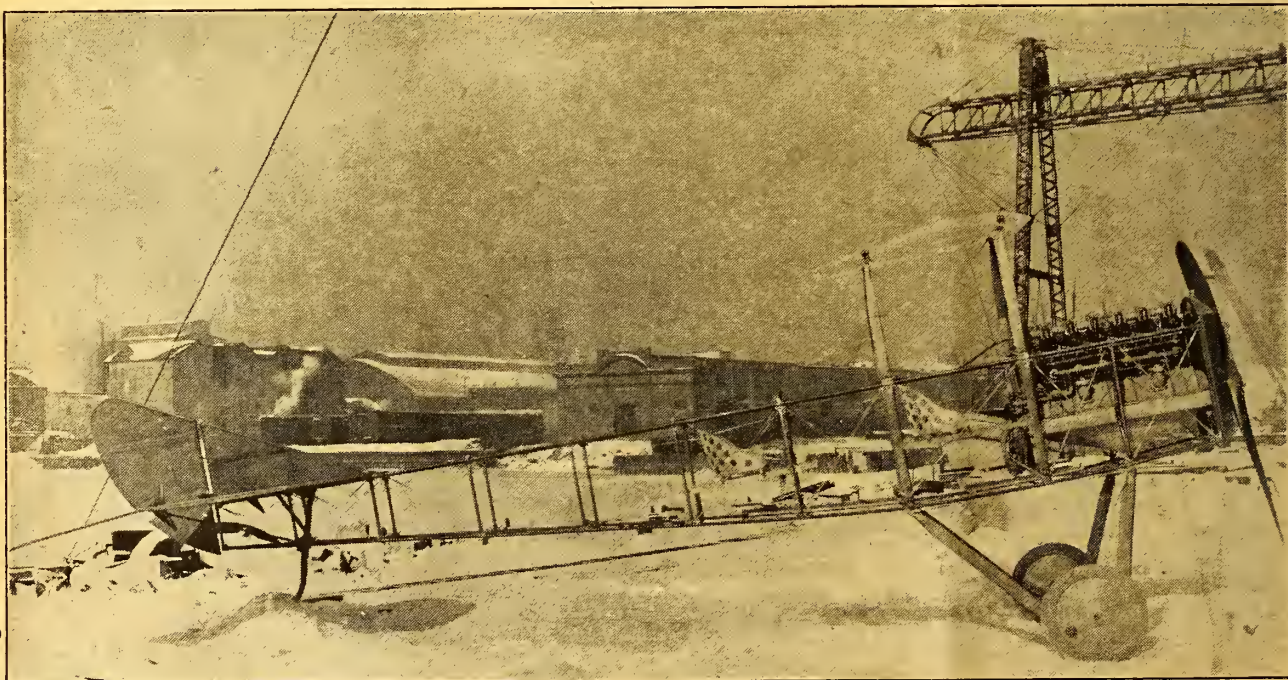
G.H.Q. communiqué, May 23rd, 9.37 p.m., says:—

Hostile aircraft active on portions of our front yesterday. Fourteen enemy aeroplanes were engaged and one was driven down inside the enemy's lines in a damaged condition.

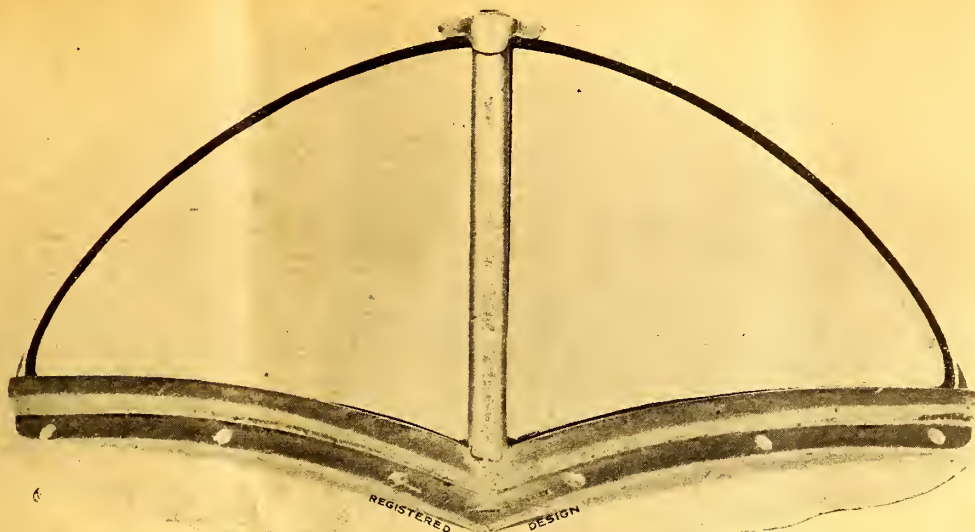
* * *

G.H.Q. communiqué, May 28th, 1916, says:—

Yesterday our aeroplanes, taking advantage of the fine weather, accomplished much useful work. Hostile aeroplanes were inactive.



The fuselage of a new all-steel biplane built by the Polson Iron works, Toronto, Canada, with a Sturtevant engine. This is the first Canadian machine of tubular construction.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Secretary of the War Office made the following announcement on May 25th:—

Since the enemy's air attack on Port Said yesterday and today he has been allowed little rest by the Royal Flying Corps.

This morning advanced posts at Rodh Salem, El Hamma, Bir Bayud, Bir Salmama, and Bir El Mazar were heavily bombed by four of our machines. Forty bombs were dropped, and had considerable effect.

The buildings and plant at El Hamma were seriously damaged, while the water tanks at Rodh Salem were smashed by direct bombs.

This will upset the whole plan of the enemy, as, since the destruction of the drilling plant at Jifaffa by one of our patrols, he has set great store on the water works at Rodh Salem.

During the return journey the pipe leading to the petrol tank of one of our machines was perforated by a bullet. The aviator was forced to descend in a Wadi beyond our lines, but managed to repair leak and return safely.

According to the reports now received, it is evident that the column consisting of troops who suffered heavily from the bomb attack on El Arish by the Royal Flying Corps on May 18th were Germans. This perhaps explains their hasty retaliation by dropping bombs on Port Said civilians.

* * *

An announcement made by the Secretary of the War Office on May 27th respecting operations against Sultan Ali Dinar of Darfur on May 22nd and 23rd says:—

Before and during the action a valuable air reconnaissance was carried out by an officer of the Royal Flying Corps, who succeeded by means of bombs and machine-gun fire in forcing first a large body of hostile cavalry and then a body of some 2,000 infantry to retire in disorder.

The officer was himself wounded by a bullet in the thigh, but returned safely to Abiad.

* * *

THE CASUALTY LIST.

Reported May 24th.

WOUNDED.—Sec. Lieut. D. A. L. Davidson, Royal Flying Corps.

Capt. W. Milne, Royal Flying Corps.

Sec. Lieut. F. C. A. Wright, Royal Flying Corps.

MISSING.—Sec. Lieut. M. M. Mowat, Royal Flying Corps.

INDIAN FORCES.—DIED OF WOUNDS.—Capt. G. B. Lucas, Indian Cavalry, attd. R.F.C.

Reported May 25th.

KILLED.—Sec. Lieut. E. F. Sheffield, Royal Flying Corps.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Capt. C. H. Marks, Royal Flying Corps.

Reported May 27th.

MISSING.—Sec. Lieut. M. D. Basden, London Regt. and R.F.C.

Reported on May 29th.

WOUNDED.—Sec. Lt. A. H. Francis, R. Sussex Regt. and R.F.C.

MISSING.—Lieut. H. L. C. Aked, W. Yorkshire Regt., attd. R.F.C.

Capt. C. E. H. James, Welsh Regt. and R.F.C.

* * *

BASDEN.—Killed in aerial combat, on May 20th, 1916, Sec. Lieut. Maurice Duncan Basden (Queen's Westminster), attached to the Royal Flying Corps, younger son of Mr. and Mrs. Duncan F. Basden, 26, Thurlow Road, Hampstead, N.W., aged 21.

* * *

GRUNE.—Killed while on reconnaissance, on March 13th, Gilbert Grune, R.F.A., attached Royal Flying Corps, younger son of Dr. E. F. Grune, The Hall, Southwick, Sussex, aged 22.

* * *

LE BRASSEUR.—On the 25th inst., at Thorpe, Norwich, as the result of a motoring accident, R. H. H. Le Brasseur, Flying Officer, R.F.C.

* * *

NEWMAN.—On May 27th (killed whilst flying), Sec. Lieut. Newman, Royal Flying Corps, eldest son of Robert Newman, of 246, Finchley Road, Hampstead, N.W., aged 21.

* * *

SHEFFIELD.—On May 17th, killed in parachute descent whilst on active service, Sec. Lieut. Edward Frederick Sheffield, R.F.C., the much-loved only son of Mrs. H. K. Knowles, of Muswell-Hill, N., and of the late F. Sheffield, of Finsbury Park, aged 20.

* * *

IN MEMORIAM.

BOLES.—In ever-loving memory of Hastings Fortescue Boles, Sec. Lieut., 17th Lancers, attached R.F.C., who died of wounds received during an aerial reconnaissance over the German lines, May 24th, 1915, aged 19.

* * *

A verdict of "Accidental death" was returned on May 27th at an inquest on the body of Sec. Lieut. John Arthur Ruck, R.F.C., son of Mr. Morris A. Ruck, of Weaverling Grange, near Maidstone, who was killed while flying on May 25th. The machine

descended in a field, turned a somersault, and caught fire. Mr. Ruck was thrown clear of the flames and was found lying unconscious near the wreckage. He died a few hours later from fracture at the base of the skull.

* * *

Sec. Lieut. Robert Newman, R.F.C., met with a fatal accident while flying on May 27th. At the inquest held the same night, Mr. Robert Newman, of Hampstead, identified the body as that of his eldest son. He was in France about three months, and on one occasion took a machine over in what was considered almost record time—an hour and a half. Dr. Frederick Claude Kempson, of Cambridge, said he saw the machine, which had been circling around, dive and pitch to the ground. He went to the spot and found the two occupants of the machine were severely injured. Mr. Newman was unconscious, and died in the ambulance on the way to the hospital. Major Vernon Harcourt said that the officer had been in France some months, and had been recommended for flight-commander. The planes of the machine were broken, but the controls were all right. He was of opinion the accident was caused through a slide-slip. Capt. Leslie Fitzroy Richards said he saw the machine fall from a height of about 300 feet. In his opinion it slipped and got into a spinning nose-dive. A verdict of accidental death was returned.

Mr. Newman's passenger, Mr. Bayley Bruyn, died of his injuries on May 30th.

* * *

A fatal aeroplane accident occurred on May 28th in Kent. A military biplane (apparently a B.E.) was rising for the return journey when it was caught by the wind and side-slipped at a height of 120 ft., falling nose downwards. The pilot, Capt. George Alfred Grime Jones, was killed, and the observer, Sec. Lieut. Tennant, was seriously injured. Mr. Tennant, who is aged 19, is the son of the Under-Secretary for War. He was recently learning to fly near London. He is progressing favourably.

* * *

JACKSON—WANSEY.—On May 23rd, very quietly, at Hughenden Church, by special licence, Captain Alan Howard Jackson, Sherwood Foresters and Royal Flying Corps, to Kathleen, youngest daughter of William Wansey.

* * *

Captain B. C. Hucks, R.F.C., of Queen's Gate Terrace, W., was fined £25 at Acton on May 24th for driving a motor-car at High Road, Chiswick, at 31 miles an hour, £5 for using an unregistered car, and £5 for not being licensed. Seven previous convictions were proved.

FROM THE "COURT CIRCULAR."

BUCKINGHAM PALACE, May 27th.

The following Officer had the honour of being received by the King, when His Majesty conferred on him the Military Cross:—Lieut. WILLIAM ACLAND, R.F.C.

FRANCE.

The communiqué of May 17th says:—

During the night, May 16th-17th, 13 of our bombarding aeroplanes dropped 24 bombs on the German bivouacs in the region of Damvillersville, before Chaumont, 11 on the railway stations of Briellules and Clery, 14 on the cantonments at Nantillois and Roniagne, and 21 on the station of Apremont and on Grandpré. Several fires were noticed.

The same night another of our squadrons dropped 40 bombs on the aircraft sheds of Frescaty, 20 on the stations of Metz and Ars, 40 on the station of Arnaville, and 30 on the railway lines and stations between Metz and Thionville.

One of our pilots brought down a German machine to the north of Vic-sur-Aisne. The two wings of the enemy machine fell off during its fall.

During to-day one of our pilots, in an aerial fight, brought down a German aeroplane, which fell to the north-west of Rezonville.

Another enemy aeroplane, riddled by the machine-gun fire of one of our machines, fell in the region of the Ban de Sapt.

To-day one of our squadrons bombarded the station of Metz-Sablons, on which it dropped 25 heavy shells.

In the region of Verdun the activity of the aviators was particularly marked, 33 actions being fought. Three German aeroplanes were brought down. All our machines returned safely.

* * *

The communiqué of May 18th says:—

During the night enemy aeroplanes dropped several bombs in the region of Lunéville, Epinal, and Belfort, causing some unimportant damage to property.

On the night of the 16th-17th our aeroplanes effected numerous bombardments on the front to the north of Verdun. Fifteen bombs of large calibre were dropped on an important munitions depot between Raucourt and Arrocourt, about six miles south of Sedan, five on the railway station of Sedan, where an outbreak of fire was noticed, and 15 on a munitions depot near Azannes.

The same night two of our machines dropped 24 bombs on the railway station of Metz-Sablons.

The communiqué of May 19th says:—

Enemy aeroplanes last night dropped three bombs on Gérardmer (in the Vosges), doing only slight material damage.

A German aeroplane was brought down yesterday by one of our pilots near St. Ménéhould. The enemy aviators were captured.

Sub-Lieut. Navarre brought down his tenth German aeroplane. The enemy machine fell and was smashed to pieces near Bolante, in the Argonne.

During the night of May 18th-19th our aeroplanes carried out numerous bombardment operations. The aerodrome of Morhange (in Lorraine), the stations of Metz-Sablons, Arnville, Briulles, Stenay, Sedan, and Etain, and the bivouacs of Montfaucon and Azannes were bombarded with numerous projectiles.

* * *

The communiqué of May 20th says:

On Friday Sub-Lieutenant Navarre brought down his eleventh German aeroplane. The machine fell in our lines at Chattancourt. The two enemy airmen were captured.

During the day another German aeroplane, attacked by Sub-Lieutenant Nungesser, fell and was dashed to pieces in the Forges Wood. This is the fifth aeroplane brought down by this pilot.

Three other German aeroplanes, which were fired upon by our machines with quick-firing guns, were seen to fall vertically, nose down, in their own lines.

On Friday night some German aeroplanes dropped a large number of bombs on Dunkirk and Bergues. At Dunkirk a woman was killed and 27 persons were injured. At Bergues there were five killed and 11 wounded.

As a reprisal, a French air squadron went up immediately to bombard the enemy cantonments at Wyfweg, Zarren, and Handzaeme, while a Belgian squadron bombarded the aviation centre at Ghisteltes. The majority of the bombs found their mark.

One of our motor-guns brought down a German aeroplane in the region of Verdun.

An enemy air raid in the region of Baccarat, Epinal, and Vesoul caused only insignificant material damage. Four persons were slightly injured.

* * *

The communiqué of May 21st says:—

During Saturday night our bombarding aeroplanes dropped numerous bombs on the military establishments at Thionville, Etain, and Spincourt, and on the bivouacs in the region of Azannes and Damvillers. A bombardment of the shunting station of Lumes caused the precipitate departure of trains and an extensive conflagration among the station buildings.

During an aerial combat between four of our machines and three Fokkers over the Forest of Bezanges, one of the enemy aeroplanes was brought down. Another Fokker, attacked by one of our pilots, was forced to come down in his own lines under the fire of our batteries, which destroyed the machine.

* * *

The communiqué of May 22nd says:—

In the region of Verdun our aeroplanes attacked German captive balloons. Six of these balloons were brought down in flames.

In the course of an aerial fight one of our pilots brought down a German aeroplane in the region of Les Eparges.

Two other enemy machines attacked by our aircraft fell and were wrecked—one in the enemy's lines near Liancourt-Fosse, near Roye, the other in our lines at Fontenoy, west of Soissons.

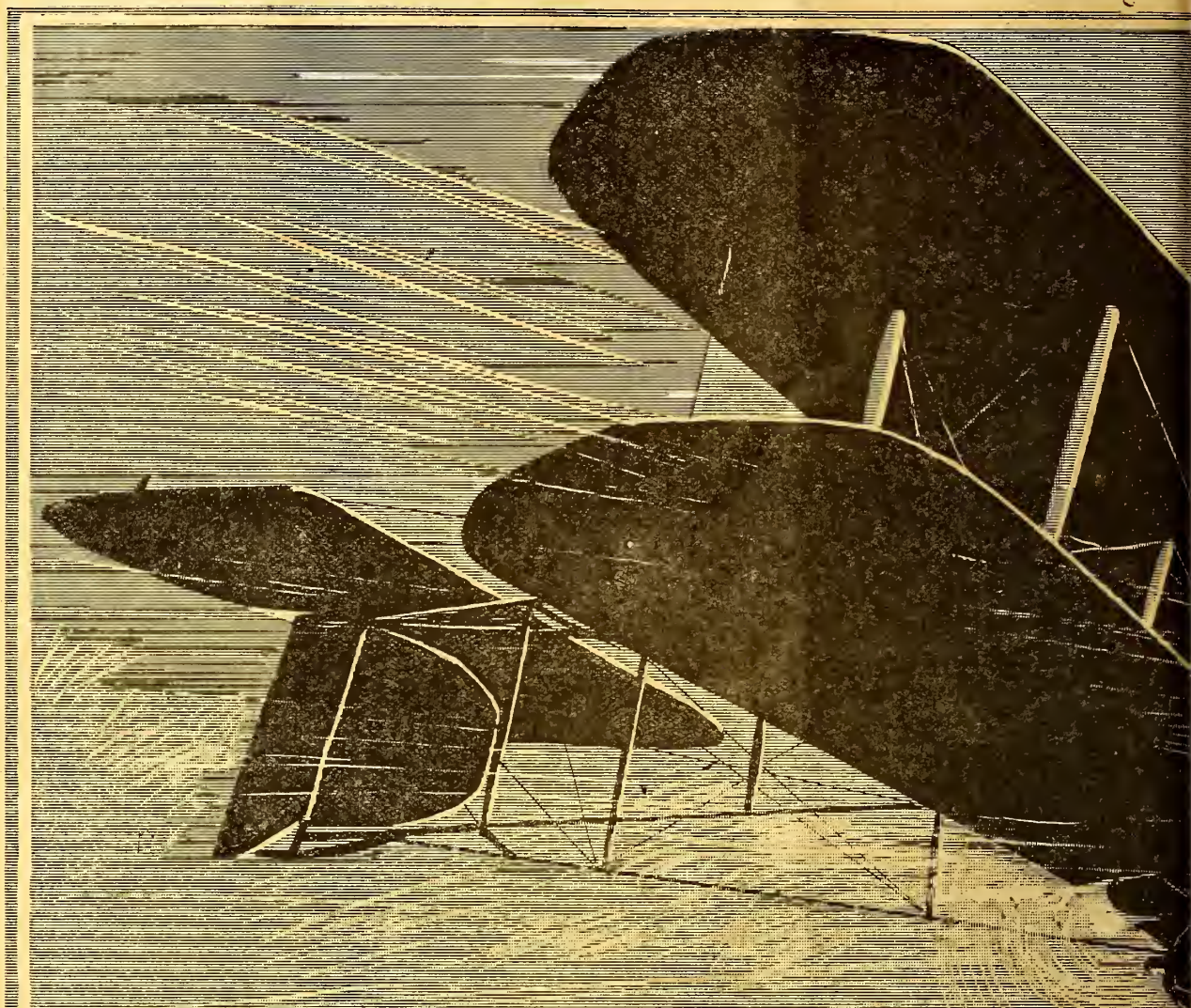
This morning enemy aeroplanes dropped bombs on Dunkirk.

During the night of May 20th-21st several operations were carried out by our bombarding squadrons.

Bombs were dropped with success on the railway stations of Metz-Sablons, Avricourt (north-east of Lunéville), and Roye; the munition depots at Biache and Chapelotte; the bivouacs in the region of Azannes and on the village of Jametz (both north of Verdun), where a high commander's post is established.



The Enemy, Photographed by Himself.—A photograph from a German Kite-balloon, showing its own shadow. Just below the shadow may be seen a line of German soldiers leaning back on a bank and looking up at the balloon. On the left is a badly battered farm. Many shell-holes may be noted in the field.



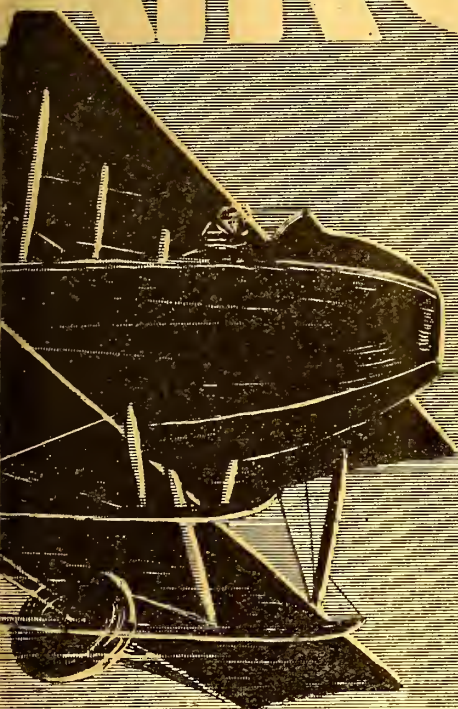
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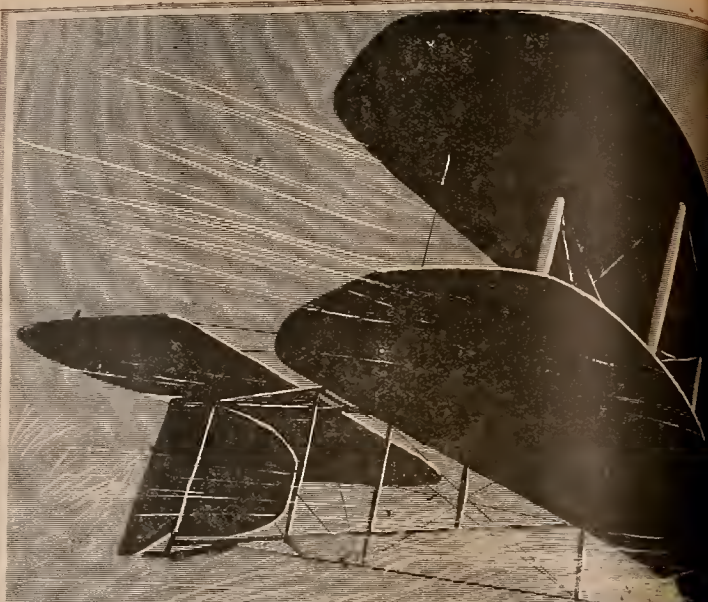
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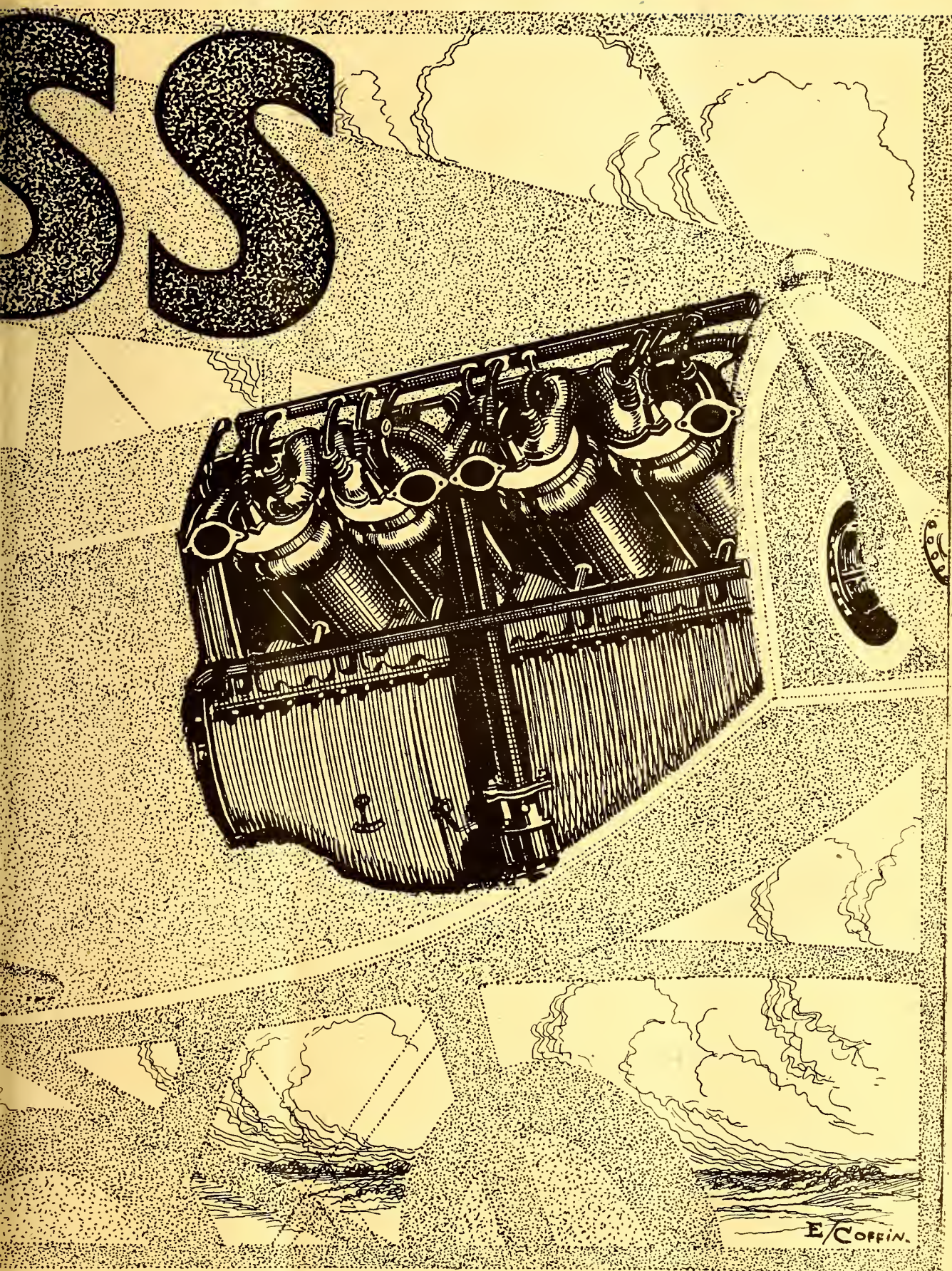
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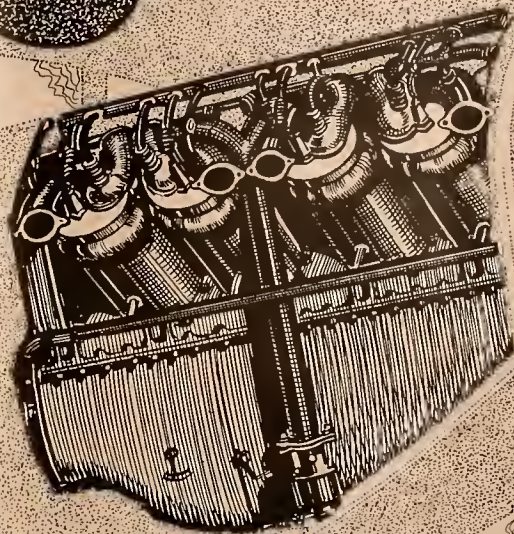
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Two of our airships plentifully bombarded the railway stations and the permanent ways at Brioules and Dun (also in the Verdun region.)

* * *

The communiqué of May 23rd says:—

In the region of Furnes a German machine, shelled by one of ours, was brought down in our lines.

Near Beaumont an Aviatik, which was badly hit in the course of an aerial flight, fell in the enemy lines.

In the region of the Linge one of our pilots, attacked by three enemy aeroplanes, brought down one of his adversaries and put the two others to flight.

This morning one of our chaser-planes sent in pursuit of one of the German machines which had just bombarded Dunkirk encountered and brought it down at Wizele (north-east of Cassel).

In Alsace two enemy aeroplanes were forced down in an aerial fight. One fell into our lines at Senthem (South of Thann), the other in the region of Bonhomme, close to our trenches.

* * *

The communiqué of May 24th says:—

In the course of a fight in the air one of our pilots brought down a Fokker, which fell in the enemy lines to the north of Vaux.

In the region of Etain one of our air squadrons engaged a group of German machines, two of which were badly hit and compelled to land.

* * *

The communiqué of May 29th says:—

On Sunday our pilots were engaged in 15 aerial fights with German aeroplanes. Two of the latter were brought down. One fell in flames near Monthois (Argonne) and the other in the region of Amifontaine (north of Berry-au-Bac).

During a range-finding flight one of our pilots was attacked to the north of the Aisne by a Fokker, which fired over a thousand shots at him. In spite of this hail of bullets, and the fact that his machine was riddled, the pilot succeeded in getting back to his lines pursued by his assailant. The Fokker was then attacked at a range of about 30 yards by a French machine, which had come up at full speed, and was brought down near Bourgogne, to the west of Reims.

On the left bank of the Meuse our motor anti-aircraft guns brought down two German machines, which fell, the first to the north of Avocourt, and the second near Forges.

* * *

It is reported that on May 19th the American aviator Rockwell, attached to the Aviation Militaire, attacked a German aeroplane at Hartmannsweilerkopf and sent it to the ground in flames.

* * *

It is reported that on May 19th Lieut. Poulet (presumably the Caudron pilot) beat the world's height record with two passengers by attaining an elevation of 5,590 metres (about 17,200 feet). The former record, held by the Austrian pilot Lieut. Bier, was 5,430 metres.

Shortly afterwards Poulet, with three passengers, reached a height of 5,860 metres (about 18,000 feet), which still further beats another German record held by Sablatnig with 5,250 metres.

It is pleasing to hear that the height records recently broken by M. Poulet were all made on Caudron aeroplanes. The record with one passenger was made on a standard type, G. 3 type machine, with an 80 h.p. Le Rhone engine, and the records with two and three passengers were made on a standard G. 4 twin-engined machine, such as is used for war purposes. Neither machine had been altered in any way.

* * *

It is reported from Paris and placarded all over the English-speaking world that Lieut. Aviateur Wm. Thaw, of the American Squadron, has brought down a Fokker in an aeroplane fight. The fuss made about the incident is a poor compliment to America, for no notice is taken of a French N.C.O. who brings down a Fokker beyond a simple mention in dispatches, and surely many Americans could do as much. One wonders whether Mr. "Bill" Thaw would have been as famous if he had not been related to the chief character in that very sordid murder case.

* * *

The Paris correspondent of the "Times" states that the attacking of the German kite-balloon "forest" at Verdun by aeroplane, referred to in the communiqué of May 22nd, was a prelude to General Nivelle's attack on Douaumont. The discomfiture of the kite-balloons assisted the French materially in covering their movements.

* * *

It is reported that M. Boillot, the famous French motorist and aviator, was attacked on Saturday in an aerial combat. The last that was seen of M. Boillot was when fighting five enemy machines, one of which he brought down. Apparently, he was knocked out by one of the other German pilots. M. Boillot was well known as a crack cyclist and motoring racer, and carried off the Grand Prix of the Automobile Club of France twice, in 1912 and 1913 on a Peugeot. He saw action first as a motorist, when personal chauffeur to General Joffre, and then joined the

aviation corps. He was twice mentioned in dispatches for bringing down enemy aeroplanes, and a week or so ago received the Legion of Honour.

GERMANY.

The communiqué of May 17th says:—

Lieut. Immelmann shot down his 15th aeroplane west of Douai.

An English aeroplane was brought down in an air fight near Fournes. The occupants, two British officers, both wounded, were taken prisoners.

* * *

The communiqué of May 19th says:—

There was great air activity on both sides.

Lieut. Böleke brought down his 16th enemy aeroplane south of Ripont (north-west of Tahure, in Champagne).

The railway station, airship shed, and barracks near Epinal were pelted with bombs.

In the Balkan theatre an aeroplane squadron attacked the enemy camps at Kukus, Causica, Mihalova, and Salonika.

* * *

The communiqué of May 20th says:—

On Friday night one of our naval air squadrons, starting from the coast of Flanders, dropped a large number of bombs on the port and fortifications of Dover, and on Deal, Ramsgate, Broadstairs, and Margate. Extensive fires and explosions were observed at numerous points. Our aeroplanes were heavily fired upon by hostile coast batteries and patrol boats, but all returned undamaged.

* * *

The communiqué of May 21st says:—

Five enemy aeroplanes were shot down—one by infantry fire south-east of Vailly, and four in air fights near Aubreville, at the south border of the Hessen Wood, near Avocourt, and just east of Verdun.

Our aviators successfully attacked enemy vessels on the coast of Flanders, military camps, aerodromes, and the railway station near Dunkirk, St. Pol, Dixmude, Poperinghe, Amiens, Chalons, and Suippes.

Near Ostend an enemy aeroplane was shot down by our anti-aircraft guns and fell into the sea.

Four other machines were brought down in the course of aerial fighting—two of them within our lines near Lorgies (north of La Bassée) and south of Chateau Salins, and the others behind the enemy front at the Bourrus Wood, west of the Meuse, and east of Verdun.

Our aeroplane squadrons again hotly bombarded Dunkirk from the east during the night.

* * *

The communiqué of May 22nd says:—

Our air squadrons yesterday afternoon made repeated attacks on the concentration harbour of Dunkirk with visible success. An enemy biplane, after a fight, fell into the sea.

Four more aeroplanes were placed hors de combat within our lines—namely, near Wervicq, near Noyon, near Maucourt (east of the Meuse), and north-east of Chateau Salins. The last machine was brought down by Lieut. Wintgens, being his fourth success.

First Lieut. Böleke shot down his seventeenth and eighteenth enemy machines south of Avocourt and south of the Mort Homme. In recognition of his performances the Kaiser has promoted First Lieut. Böleke to the rank of captain.

* * *

The communiqué of May 23rd says:—

An enemy aeroplane was shot down south-west of Vailly.

* * *

The communiqué of May 24th says:—

Two enemy biplanes were shot down in air fights—one near St. Souplet (in Champagne) and the other near Herbéclois (north of Verdun).

German aeroplanes attacked a number of British torpedo-boats and scout vessels off the coast of Flanders.

* * *

The communiqué of May 29th says:—

German aeroplanes successfully dropped bombs on the aerodrome of Furnes, in Belgium.

* * *

The German Government expect all classes to work for the common cause. The clergy seem to have been roped in to encourage the masses if one can judge from the article written for the "Schleswig-Holsteinische Sonntagsbok" by Bishop Kaftan of Kiel, who says:—

"Thank God, England's insular security is gone forever. May a hundred more Zeppelins be visited upon her, and should they ever succeed in dropping bombs on the Bank of England, what a heartfelt cry of jubilation would resound throughout Germany, considering that it was for money that Great Britain started the war."

RUSSIA.

The communiqué of May 16th says:—

Enemy aeroplanes dropped bombs on many spots along our lines.

* * *

The communiqué of May 28th says:—

In many places enemy aeroplanes appeared. One of them was struck by our artillery and was caused to come down near the village of Illukst.

In the Black Sea one of our submarines sank a big Turkish brig near the Anatolian coast under fire from the coast batteries and an enemy seaplane.

* * *

The communiqué of May 29th says:—

Our air squadron bombarded the enemy electric station at the town of Komay, north-west of Lake Narotch.

* * *

It is reported that Russian aviators dropped large numbers of bombs on the railway station of Ponevezh (on the Dvinsk-Libau line) on May 22nd and destroyed the railway from Libau for several kilometres. They also demolished some ammunition depôts.

* * *

It is reported by the Exchange Telegraph's agent in Paris that on the Riga front there has been noted a German armoured machine of a new type, of considerable size, painted entirely black. It has enormous speed, making an average of 112 miles per hour. The correspondent assumes that its stability must be good, since it appears to disregard dangerous air currents and makes its appearance at various points on the front, no matter what the weather and wind may be.

The first time it entered into action was at Easter, when it took part with a German squadron in the bombardment of a village near Riga. On subsequent days it was noticed in the region of Riga and Jacobstadt.

The new machine appears never to fly at a lower altitude than 3,500 metres (about 10,800 feet).

AUSTRIA.

The communiqué of May 16th says:—

Early to-day enemy aviators dropped bombs on Kostanjevitza and on several hospital buildings, which were clearly marked, without doing any damage.

* * *

The communiqué of May 17th says:—

A strong squadron of our military and naval aeroplanes early yesterday morning and the night before bombarded the railway stations and other buildings of Venice, Mestre, Cormons, Cividale, Udine, and Treviso. Everywhere, especially at Udine,

where some 30 enemy guns opened an unsuccessful fire, the great effect of our bombardment was observed.

* * *

The communiqué of May 20th says:—

Our aviators dropped bombs on the railway stations at Peri, Vicenza, Cittadella, Castelfranco, Treviso, Casarsa, and Cividale, and also on hostile seaplane stations.

* * *

The communiqué of May 23rd says:—

Our seaplanes dropped numerous bombs on the railway line between San Dona di Piave and Porto Gruaro.

* * *

The communiqué of May 26th says:—

Our army aviators bombed the railway stations at Peri, Schio, Thiene, and Vicenza, and our naval aviators bombed an airshed in the harbour of Grado. During the night an enemy airship dropped numerous bombs on Trieste. Nobody was hurt, no damage was done.

ITALY.

The communiqué of May 16th says:—

A raid by enemy aeroplanes upon places on the Lower Isonzo is reported to have taken place on the night of the 15th, upon Venice and Mestre the same evening, and upon Udine and Treviso at dawn on the 16th. There were few victims and the damage was very slight.

A squadron of our Caproni aeroplanes at dawn this morning bombarded the railway station of Ovcia Draga, and the enemy cantonments at Kostarievica, Lohvica, and Segeti on the Carso. Fifty bombs were thrown with very effective results. Our squadron, though the object of fire from many batteries and assailed by very many enemy aeroplanes, returned undamaged, after having brought down two enemy aeroplanes, which fell in their territory near Gorizia.

* * *

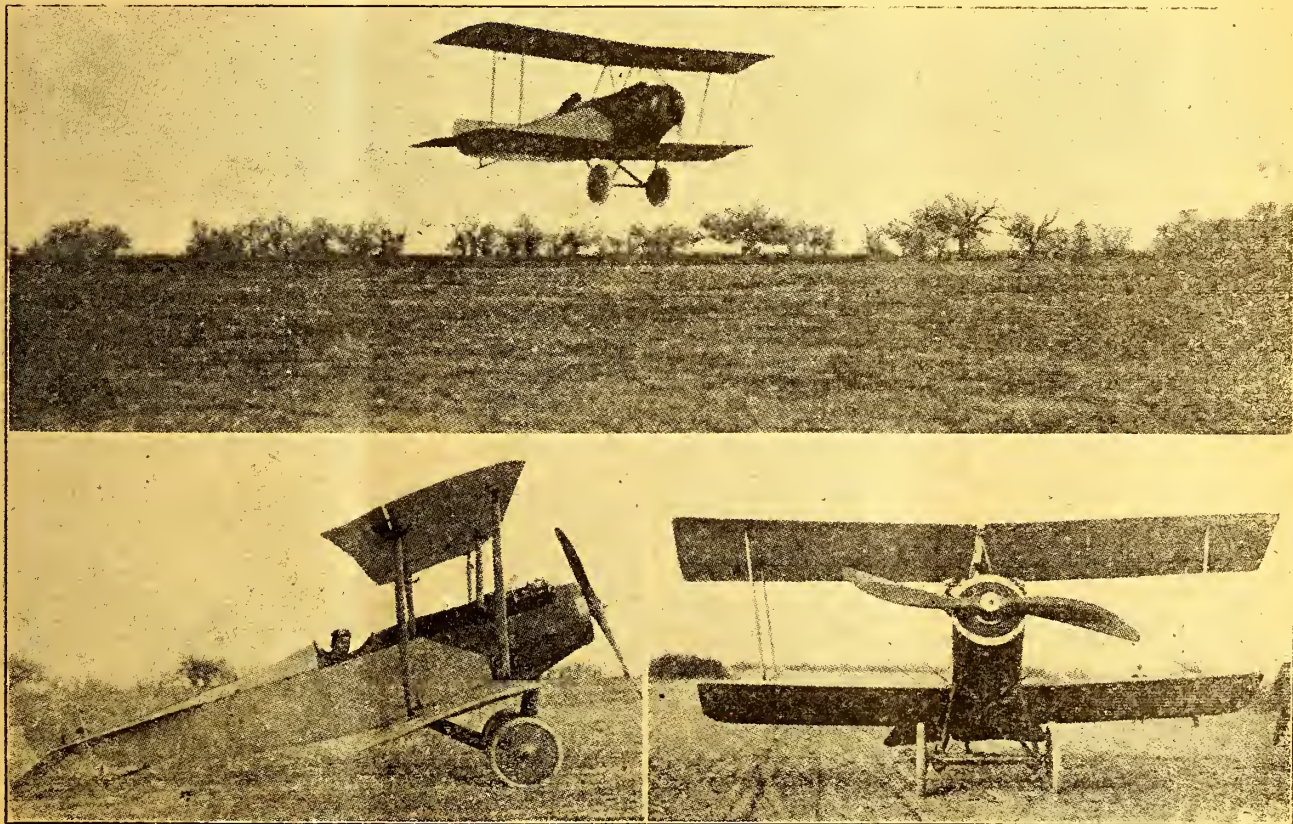
The communiqué of May 17th says:—

Enemy aircraft dropped bombs on Castel Tesino, Ospedaletto, Monte Belluna, Stazione Della Carnia, and Gemona. Some persons were killed, but no damage was done. One of our air squadrons dropped bombs on Dellach and Kötschach in the Gail Valley, causing fires there.

* * *

The communiqué of May 19th says:—

Enemy aeroplane raids are reported at various points in the Venetian Plain. We had altogether one killed and one wounded and some slight damage was done. Our aeroplanes bombarded enemy parks and camps in the Folgaria zone, returning unharmed though having been exposed to the fire of numerous batteries.



The new Curtiss Scout. A fast single-seater with 160-h.p. Curtiss engine.

The communiqué of May 20th says:—

A big aerial raid was attempted by the enemy at daybreak yesterday in the Venetian plain. There were slight casualties at Cividale and Murano, but almost no material damage was done. The enemy squadrons pushed on towards Udine and Casarsa, but were driven back by the prompt intervention of our aviators.

* * *

The communiqué of May 21st says:—

Enemy aircraft dropped some bombs on Vicenza, Valdagno, Feltre, and Fonzaso. Two persons were killed and four injured. The damage done was very slight.

* * *

The communiqué of May 23rd says:—

In the Riva zone hostile aircraft were active on the Baldo. A number of stray enemy aeroplanes dropped some bombs on different places in the Venetian Plain. A few persons were injured, but no damage was done.

* * *

The communiqué of May 24th says:—

Enemy aeroplanes dropped bombs on Stazione della Carnia. There were a few victims and slight damage was done.

* * *

The communiqué of May 26th says:—

Enemy aeroplanes dropped bombs on Caltravo, Thiene, and Latisana, killing and injuring a number of people and doing some slight damage. One of our squadrons of Caproni aeroplanes bombarded the enemy positions between the Toara Valley and the Arsa Valley. On the Carso, at the height of Kostanjevica, one of our aeroplanes compelled an enemy Drache to descend rapidly.

* * *

The communiqué of May 27th says:—

Enemy seaplanes dropped bombs on the Grado Lagoon without injuring anyone or doing any damage. One of our air squadrons bombarded the enemy's store depots at Kötschach, in the Gail Valley, doing great damage.

* * *

It is reported from Rome that on May 25th a naval airship dropped 28 bombs on the enemy's battery at Punta Salvore (at the entrance to the Gulf of Trieste) with excellent results and returned safely in spite of the heavy fire to which it was subjected by the enemy's artillery.

* * *

It is reported from Switzerland that on May 27th an Italian aviator exploded an important Austrian ammunition depot containing hundreds of tons of explosives, north-east of Borgo. Many soldiers were killed and wounded.

The report goes on to say that the aviator also attacked a battery of 11-inch guns, destroying several.

[It seems possible that the pilot may have touched off the depot, but the story about the destruction of "several" 11-inch guns seems a trifle tall.]

* * *

The following account of the Austrian raid on the night of April 16th is of interest:—

Austrian aeroplanes perpetrated night incursions over Venice, Mestre, and Udine. Following the railway line from Venice to Mestre, they tried to drop bombs on an express train which had left Venice for Bologna at 9 o'clock, and in which two Royal Princesses, Yolanda and Mafalda, were travelling. At the same time a Royal train with Queen Elena was coming from Udine, and entered the station of Mestre at half-past nine. The Royal Princesses at once entered the train of their mother, which started away. Reports of the anti-aircraft guns and bombs were heard as far as Padua, and when the Royal train reached that station with the Queen and Princesses there was quite an ovation in their honour, and they stood at the carriage windows, smiled, and thanked the crowd for their loyal demonstration.

Just before dawn, about four o'clock in the morning, Udine was visited by a squadron of eight or ten aeroplanes, which had been able to approach treacherously at a great height, favoured by light clouds and mists. They dropped a number of bombs, and one of these unhappily fell in the midst of a crowd of boys and youths who were standing in a little open place just outside the town and gazing at the sky. Eight of them, aged from 7 to 11 years, were instantly killed, and two others were severely injured.

* * *

The silver medal for valour has been awarded to Sergt. Taliani, who, "well knowing the inferiority of the machine he was piloting, boldly attacked an enemy plane and assisted effectively in bringing it down." Seconding his observer's desire to prevent the destruction of the prize, he made a hurried landing, in which he received wounds, but is now recovering well.

On the occasion of an official visit to Venice early in May, the Prime Minister, Signor Salandra, after having taken a submarine to reach a suburb, left the city for Mestre by dirigible. The ladies of the party apparently preferred less modern means of locomotion.

Sergt. Baldioli, who bettered the one-passenger record for Italy on the 9th inst. on a two-engined Caudron, took an 80-h.p. of that

build up to about 600 feet higher alone next day. The ink in the barograph is said to have frozen.

The "Journal de Geneve" says of the Trent dirigible raid: "The pilots brought into action the apparatus for silencing the noise of the screws (motors?) and so the airship arrived so unexpectedly that no one had had time to put the station lights out. So the Italians could aim at their leisure and got out of their range before the A.A. guns opened fire."—T. S. H.

* * *

An official résumé of the aerial activity developed during the Italian effort to relieve the pressure on Verdun, i.e., the period from the latter part of March to the end of April, runs as follows: "During this period air hostilities reached an intensity not before attained, tending constantly on the enemy's part to attacks on inhabited centres.

"Things began with an enemy attack on March 26th. Three escadrilles (two of 6 aeroplanes and one of 12 hydro-aeroplanes) converging from Trent, Pergini, Gorizia, and Pola, attempted to swoop down onto and destroy the more important bridges and crossings behind our front on the Venetian Plains. Owing to the good organisation of our aerial defence force this operation, arranged to sow ruin and death among our lines of communication, ended in a colossal failure.

"The enemy, met by artillery and rifle fire, and assailed by escadrilles-de-chasse, was dispersed and put to flight, four machines being brought down. On the following days minor efforts at raiding were similarly met, one of the machines being accounted for on April 2nd in the Lower Isonzo, while two others, struck down by our artillery, fell in enemy territory.

"Our men then started offensive operations. On the night of the 2nd, in the teeth of a gale, an Italian airship reached Opicina, an important railway junction on the Trieste line, and dropped 800 kilos of explosives on the place, upsetting everything and setting fire to the commissariat depot. During that day, too, six Capronis flew to Adelsberg, a big terminus and Austrian H.Q., where they lightened themselves of 40 high explosive bombs and caused devastation.

"With desire for revenge, but fear of the war-zone, the enemy on April 3rd sent five biplanes to Ancona, which was bombed, with casualties 3 civilian deaths and 11 wounded. But of the five machines, three fell into the hands of our artillery and the sea. Unable to withstand our marksmen, the enemy then tried to avoid them by making a night attack on Udine on the 7th. Our vigilant pilots, however, went boldly up into the darkness and, helped by the guns from below, attacked, drove back, and dispersed the aggressing force, bringing down two Austrian planes and taking five officer prisoners. Next morning another enemy waterplane was brought down by a naval battery near the Tagliamento Isthmus.

"On the succeeding night but one a dirigible of ours was navigating boldly about over the fortifications at Riva, where she dropped 40 torpedo grenades on power plants and military edifices. Considerable damage was done and the ship returned uninjured.

"In return we were attacked twice by hydro-aeroplanes; on the night following, at Grado, most ineffectually, and on the 18th at Treviso Motta, and some smaller places, where 30 bombs were dropped, causing the same number of casualties. We brought down a hydro on the return from this raid and took its occupants prisoners at Grado. Learning that these attacks came from a hydro-aeroplane base at Trieste, a place they imagined safe from our attention—[The Italians were trying to respect that city.—T. S. H.]—our supreme command sent over a squadron of Capronis on the afternoon of the 20th. The machines found that the Austrian-Lloyd headquarters in Trieste harbour had been converted into a seaplane station, which they bombarded and destroyed. Only two of the machines stationed there succeeded in escaping, by putting out to sea. From that day the enemy has limited himself to timid attempts to give trouble. In this brilliant period of the air-war the enemy lost 13 machines, exclusive of those destroyed at Trieste, while we lost none."—T. S. H.

BELGIUM.

The communiqué of May 21st says:—

During an aerial combat off Nieuport a Belgian aviator, Captain Jacquet, and pilot, Lieutenant Robin, defeated a German aeroplane, which fell into the sea.

* * *

The following German telegram originated from Brussels on May 17th:—

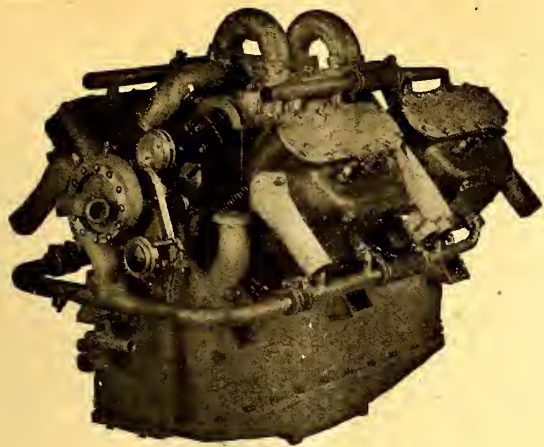
Yesterday afternoon some British naval forces appeared off the coast of Flanders. Some German warships, accompanied by patrol boats, left the harbour and went to meet them. A short fight at long range ensued, during which one of the German aeroplanes dropped bombs on an enemy cruiser, which was observed to be hit near the conning tower.

* * *

It is reported that on May 20th Zeebrugge was bombarded by Allied aviators. The German anti-aircraft guns were active.

* * *

It is reported that Zeebrugge was bombed by aeroplanes at 2 a.m. on May 21st.



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DENMARK.

It is reported from Copenhagen that British submarine activity in the Baltic Straits have checked the German warship patrols, and that seaplanes are used largely instead.

It is reported from Copenhagen that a Zeppelin was seen on May 20th over the North Sea by fishermen. The airship was accompanied by two German trawlers. Heavy firing was heard shortly afterwards and it is assumed that either the Zeppelin or the trawlers was chased by British ships.

It is reported from Esbjerg that on May 27th the corpses of two members of a Zeppelin crew were washed ashore near Blaavands Huk. One of them appears to be an officer belonging to Kiel. Fishermen picked up outside Esbjerg a large piece of canvas which is believed to have formed part of a Zeppelin. Presumably these belonged to L.19.

SWITZERLAND.

It is reported that M. Gilbert, of Morane fame, who was interned in Switzerland many months ago, has made good his escape to France. It will be remembered that M. Gilbert escaped from internment on a previous occasion, but was ordered back because of a breach of parole.

SPAIN.

The "Telegraph's" special correspondent at Madrid reported on May 28th that the War Department carried out an aeroplane test on the 27th between Madrid and Carthagena. Among the competitors was the Infante don Alfonso, King Alfonso's cousin. The Infante Alfonso accomplished the journey in one flight, lasting 3 hours and 21 minutes. He thus beat the Spanish long-distance record.

The Infante Alfonso married Queen Victoria's cousin, Princess Beatrice of Saxe-Coburg-Gotha. The Prince started on the return journey to-day, but was obliged to come down at Albacete owing to a strong head-wind.

GREECE.

It is reported that Captain Gianotti, of General Sarraill's Staff, is on his way to Paris with a flag retrieved by a sailor from the wrecked Zeppelin on the Vardar marshes. The colours will be shown at the Invalides.

It is reported that on May 14th British aeroplanes bombarded Poro Lagos, west of Dedeagatch, on the Bulgarian coast, returning safely. With reference to the French aeroplane raid in the Xanthi district, General Sarraill states that 14 machines took part, dropping 80 bombs. German aeroplanes attempted a pursuit, but all the French aviators returned unharmed.

It is reported that French Army mechanics are rebuilding on the open space round the White Tower the ruins of the Zeppelin, which, after great labour, have been extracted from the marshes and towed to Salonika in barges.

[It will look funny if it is built round the White Tower—whatever that may be.—Ed.]

It is reported from Salonika that on May 24th French air squadrons made raids on Xanthi, Strumnitza, and Uskub. The bombardment of Xanthi was particularly heavy and successful.

French aeroplanes bombed the enemy camps north of Petritch on May 26th.

BULGARIA.

A telegram from Sofia via Berlin says:—

On May 24th hostile aeroplanes dropped a bomb on Ghevveli without causing any damage. On the same morning five hostile aeroplanes appeared at Eskidze and dropped several bombs on the town and its surroundings, wounding some inhabitants. Our air squadron attacked the enemy and forced him to retire. One of the enemy aeroplanes was badly damaged and fell in Greek territory.

TURKEY.

The communiqué of May 16th says:—

One of our seaplanes flew over the island of Imbros on the night of May 13th and successfully bombed two large enemy ships which were anchored in the bay of Kephelos. Our seaplane, despite the fire of the enemy artillery, returned undamaged.

An enemy aeroplane appeared in the meantime and threw six bombs on the quay of Ourla, killing one man and two women of the civilian population and wounding one child.

A communiqué (about May 20th) says:—

Two enemy aeroplanes coming from Tenedos flew over the Dardanelles and were driven off by our fire. In Smyrna waters two enemy warships fired some shells on certain localities and then withdrew.

The communiqué of May 21st says:—

On May 18th three enemy war vessels bombarded El Arish for two hours, while six enemy aviators dropped some hundred bombs on the place. One person was killed and five were

slightly wounded. Two enemy aviators flying over Sedd-el-Bahr were driven off by our fire in the direction of Imbro.

In an article dated Mesopotamia, May 9th, Mr. Edmund Candler, official correspondent, says:—

On April 21st the 4 oz. grain ration gave out. From the 22nd to the 25th the garrison subsisted on the two days' reserve ration issued in January; and from the 25th to the 29th on supplies dropped by aeroplane.

On January 2nd the first hostile aeroplane was sighted. From February 13th to March 22nd airmen's bombs caused more damage than shell fire. On March 18th one bomb fell on the hospital, killing six British soldiers and wounding 26—14 severely, of whom four died. On March 21st four bombs were dropped in the neighbourhood of Headquarters, killing many Arab women and children, and the airman sank a horse-boat on the river carrying a 4.7-inch gun. After this the aerial bombardment slackened, possibly through lack of ammunition.

EGYPT.

It is officially reported from Cairo that two enemy aeroplanes dropped sixteen bombs on Port Said on May 21st. The bombs were mostly directed against the Arab quarter. Two civilians were killed, two severely and eleven seriously injured. Five soldiers were wounded, one seriously.

An eye-witness affirms that the aviators used searchlights in each case before dropping their bombs. Anti-aircraft guns quickly drove off the machines.

U.S.A.

On April 30th, Victor Carlstrom, flying the new Curtiss twin-engine military tractor biplane, the first ever flown in America, set up a new record for altitude for pilot and one passenger when he ascended 16,500 feet. This excelled the former record set April 1st by Stephen MacGordon, by 1,700 feet. He was in the air one hour and thirty-one minutes, and reached a height of 3.12 miles. Extreme cold, which caused ice to form on the radiator, made further climbing impossible, although the weather there was warm.

Theodore McCauley, an instructor at the Curtiss Aviation School at Newport News, flying the H-7 model Curtiss Flying Boat, on April 30th established three new world's records for a machine carrying seven persons, in addition to setting a new American record for a craft of this type.

McCauley, carrying six passengers, was in the air 70 minutes, and flew 88 miles. This broke the world's record for endurance and distance. The third world's record broken was for speed, the machine making 100 kilometres, or 62 miles, in 50 minutes. An altitude of 950 feet gave him the American record in this respect. Former records for a machine carrying six passengers were held by the late M. Garaix, and were made on April 22nd, 1914, on a Schmitt.

The flights were witnessed by a Congressional committee there in connection with the plan to establish an aviation corps for the Coastguard Service.

A JUSTIFICATION.

Mr. Charles Styles, better known perhaps as "Gordon Bruce," of the "New York Tribune," in a very graphic article on a trip by air to France on a British aeroplane, describing his arrival at a certain aerodrome, says:—

"Now, less than two months ago I visited that same aerodrome and inspected the equipment. And there is no comparison between what I found there at the time of my first visit and what is there now. The improvement is amazing."

One is glad to have this unprejudiced testimony to the excellent work being done by those now responsible for R.F.C. organisation. The past two months have indeed been well spent.

Incidentally, the fact that so much improvement is noticeable in the past two months seems ample justification for all criticisms.

THAT AERONAUTICAL INSTITUTE.

It is announced that Sir Hiram Maxim has accepted the invitation of the "Aeronautical Institute of Great Britain" to become its first President.

One would imagine that this estimable gentleman cannot be fully acquainted with the inception and career of M. Blin Desbled's curious organisation.

When he discovers, as doubtless he will shortly do, that each of the prominent members of the Aviation world who has been induced to lend his name to the "Institute" has promptly severed his connection on discovering its real standing, he will doubtless follow suit.

He will certainly not add to his reputation by occupying the position of the first President.

THE INVASIONS OF ENGLAND.

During the raid on May 19th the usual narrow escapes occurred and a fair proportion of the bombs dropped into fields and open spaces. A stained glass window in a church was damaged, but the direct hits scored on buildings were few.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

THE VIRTUE OF COMMON THINGS.

Conventionality is like oatmeal porridge, something not at all alluring or artistic, but sustaining and dependable nevertheless. Otherwise it would not be conventional. The experimental, on the other hand, however ingenious and attractive, has yet to pass pudding-proof. Or it would be no longer experimental.

This is the reason why one prefers Beeton or Brillat-Savarin to any conceivable Saturday evening edition as a guide to digestive happiness. Merit in the example, therefore, mostly becomes the result of treatment. Thus while there is nothing simpler than your *Sole Colbert*, there is only one place in London where they produce it in perfection. So given treatment—and due scope therefor in the first place—one comes to respect conventionality as the most reliable *fond de cuisine* when all is said.

So it is—or rather should be—in motor-design. For understand it is a long way from the conventionality—banality rather—of the mass of Olympia car-show productions, to the merely appropriate and chosen grouping of familiar details which constitutes the conventionality of a good aeromotor.

With an urgent demand to satisfy—commercially at that—the most artistically-minded designer of whom production is required has little time for any novelties of scheme, cycle or system, however good in fact or expectation. He must deal alone with what he knows he can trust; and in the reliability of the result, quite as much as its harmony, he proves himself no less the artist.

TREATMENT AND THE CONTRAST.

Now it is just in this matter of appropriate treatment that I consider that the designer of the Sturtevant aeromotor has succeeded—in his design at least—where a Franco-British one of the same eight-cylinder V-type has failed; albeit the latter has been used in considerable numbers, and got through its work—with management.

Of its reputation behind the lines—where precise values are adjusted and decided with merciless candour—I know nothing beyond hearsay. Which being no evidence, I prefer to say nothing. As a pilot—which I do not happen to be—I might say much: quite unprintable and in any case clearly outside the scope of official enquiry. I merely, therefore, write to warn anybody concerned of the probabilities from a practical standpoint on the mere evidence of the thing seen: or foreseen, if I am so fortunate.

THE STURTEVANT MASS-MATERIAL.

But in the case of the Sturtevant 140-h.p. Model V, it is clear that we have, to begin with, a number of the most conventional details—mostly automobile in origin—to be made the best of. There is the casting of the cylinders in pairs; probably as well that way in any motor, automobile, marine or aerial. Making for compactness so far as it goes—always the most difficult proposition with any vertical motor, and still more so with a V type—and taking one essential consideration with another, perhaps the best combination of foundry convenience, machine-shop economy, compactness, and handiness as a spare unit.

Then there is the matter of the 7-shaped head. Second-rate, third-rate design even: both in theory and power-rendition, as has been demonstrated perpetually, beyond question. It does not, cannot give the power of a dome-shaped head with vertical or diagonal downwardly acting valves.

And with all valves disposed in a row, it cannot give as much power—and probably does not tend to as efficient cooling and expectation of life, for the exhaust valves, as when a downward-acting, rod-and-rocker-operated inlet is set immediately above each exhaust. So much is known, practically beyond argument.

We start then with two or three bad marks against the given example of this modelling. Only the A.C.G.B.I. marks system—upon which those on high in the R.A.F. were nurtured—never was much use, and counts for nothing but confusion and abortion in aviation.

ON CERTAIN POINTS OF PRACTICE.

In aeromotor practice, while not wholly admirable, it is at least convenient. Valve-operation cannot be more direct. The adjustment is perhaps not so accessible; but only occurs at one point, the heads of the risers, and once made is the less likely to be interfered with. Mechanically, there are no joints to wear; and the weight of rods, rockers, and pivot-pieces—which all adds up—is saved.

Weight, as a fact, is saved even if we encase the valve-stems and springs, motor-car fashion. Not at all a bad thing to do in a V-type aeromotor design of this type—albeit no one has yet—as the damp is thus kept away from the springs, which otherwise would be kept neither cooler nor hotter, but under precisely the same conditions as in a car.

The only irremediable defect, then, is the length of the valve-chest and the consequent restriction of available valve area. Thus, unless the design is carried out by a man who really knows how to harmonise the thousand other considerable details with this particular one, there is the liability to excessive valve-lift, and, especially in a fast-running motor, the consequent tendency to valve-warping and stretching. To prevent which, the choice of

the appropriate metal for those valves again becomes a matter of the greatest nicety, the soundest experience.

For confirmation of all these points, enquire at Farnborough, where they know all about it, having had the experience of some five hundred experimental alterations, it appears. Who should know better? except those—*morituri vos salutant*—who have finally to use the results of so much knowledge.

AND CERTAIN SPECIAL DETAILS.

On this question of metals, however, the designer of the Sturtevant aeromotor proved that he knew his work by choosing tungsten-steel, specially treated and hardened, for the valves, and that kind of tough fine-grained iron which the Americans—in their way of high-art salesmanship—call “semi-steel,” for the cylinders. He also showed his sympathy with the foundry-end of production—as few of his trade do—by adopting the original Hotchkiss system of free panelling for the water-jackets so as to let out the cores easily and get the thicknesses even. He went further, obviously: for instead of covering the valve-chest with covers, he made one panel—and a free flush of water beneath it—cover the lot, in each twin casting.

Then and therewith, he evidently began to consider the treatment of his conventional details, so as to produce a purely aeromotor result. The grinding of valves, beneath covers—had there been any such covers—must have left gritty matter in a V-type motor unless the cylinders were dismounted: the chief thing to be avoided if possible. So he made the seatings of the valves to be inserted upwards from beneath—and held in position with opening nuts—and, consequently, to be detachable bodily with the valves for inspection or grinding without disturbing any other part of the motor. British designers, please copy.

All I wonder at—since he had designed such an admirably clear and freely-flushed valve-chest, and was using a powerful water-pump, and in no way depending on thermo-syphonic circulation—is that he did not adopt the one-time Clement practice of driving in the cold water first to the valve-chest and around the cylinder heads, and taking it out at the bottom of the cylinder-jackets. In which case, one would bet evens on cooler valves, and take short odds about greater thermal efficiency and power from every working-stroke.

THE MAIN SCHEME OF THINGS.

At this point the author of the Sturtevant evidently considered his conventional material—so far automobile practice solely—in the most serious unhurried fashion, in view of its aeromotor purpose. As the result shows, he did at least grasp the essentials—one might say foundations—of aeromotor design as clearly as his Franco-British contemporaries missed them; deluded, no doubt, by racing success, into the belief that they knew all about the matter.

The American, at least, saw that these were unrestricted carburation and mixture-delivery on the one hand, and free exhaust on the other, in the first place. Secondly, that, apart from any other identifying condition, such as the continuous character of the work, a fuselage was nothing more than a hull of sorts; and, therefore, that the entire scheme had to be on marine lines.

AMERICA'S ADVANTAGE.

Now, in spite of British world-championships at Monaco, won at preposterous expense, America's countless miles of sheltered waterways have enabled motormen and boatbuilders to go on with developments at the rate of thousands of examples to one in Europe. Thus, for a single Ursula, there are twenty Ankle-Deeps, and others, possibly half-a-knot slower, but far more numerous and therefore educative. And the gassing of more than one racing crew soon established the fact that the central, more or less vertical, system of exhausting big motors is not only deadly dangerous, but the worst possible marine motor engineering. For not only does it encumber the central areas of the motor with a stack of hot tubing, but it hopelessly complicates the manifold scheme, as well as making all the underwork of valves, springs, etc.

Again, nobody with the slightest idea of motor-boat installation would dream of clearing the central area of a V-type motor by hanging one carburettor and the induction—let alone four of them—on the outside faces of the motor. Similarly, nobody with any conception of the conditions of service aviation would make such an arrangement for an aero motor, as to place such a vulnerable affair as a carburettor on the outer faces because it happened to be accessible.

Any designer who knew his work, in short, would see that only two positions for the carburettor were possible: either directly over and above the centre, branching the induction spider-fashion from that point, or fore or aft of the centre line with two branched omni-hus-tubes or a hoop of some sort.

THE RESULTS STUDIED, NOT FLUKED.

All this, at any rate, the Sturtevant man fully grasped; and so based his design as a marine one from the outset, first by setting his exhaust valves at the ends of the valve-chest of each twin cylinder casting—and the inlets between—which enabled him to carry the exhaust readily downwards and outwards, clear of the

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central area; thus leaving it open and accessible for the induction system and everything else.

Alternatively, he had the choice—seeing that there was no valve covers or upper-insertions to consider—of placing the exhaust valves in the middle and carrying the exhaust out in a single wide and well-cooled exhaust passage between the cylinder heads. Just as simple a foundry job this, possibly easier; better commercial production, because leaving only one outlet joint, and certainly saving the weight of four pipes. However, he did not happen to take this more artistic alternative, but arrived at the same general result, nevertheless, a clear central area.

Now good things no more than bad end with the immediate result. The further one was—and is in any such scheme of exhausting—that silencers can be readily fitted on either side; the great essential of Service aeroplane installation, only recognised now that it is found highly inconvenient and occasionally impossible to embody it in the majority of aeromotors.

It is not too much to say that an aeromotor should really be designed up to this object. Whether the Sturtevant has actually been, one cannot say. At any rate, the object has been duly achieved; and so far recognised by its authors that they set out to supply special mufflers which—as the power-curve chart clearly shows—silence the motor with only the slightest power-loss. So much, then, for the treatment of the conventional with the appreciative judgment of a master-hand. Or merely that of a man who knows his job and does not attempt to fluke results or fake them.

(To be Continued.)

MILESTONES—XXXI.

The picture on the front of the cover illustrates the following machines:—

The Clement-Bayard monoplane of 1911 was convertible into a tractor biplane. The standard engine was a 50 h.p. Gnome. The machine was interesting, but never did much.

The Zodiac biplane was a particularly graceful tractor biplane, almost reminiscent of the Antoinette monoplane in many respects. It was one of the earliest machines to employ staggered wings. Having only a 50 h.p. Gnome engine it was badly underpowered, so never did itself justice.

The Jezzi tractor biplane of 1911 was a development of an earlier model built entirely by Mr. Jezzi, an amateur constructor, at Eastchurch. With a low-powered J.A.P. engine it developed an amazing turn of speed, and it may be regarded as a forerunner of the scout type of biplane, as well as of the properly streamlined aeroplane.

The Paulhan-Tatin monoplane of 1911 was a brilliant attempt at attaining high speed for low power, and it presented certain advantages as a scouting machine. A 50 h.p. Gnome was fitted behind the pilot's seat in the streamlined fuselage and was cooled through louvres. The propeller, mounted at the extreme end of the tail, was connected to the engine by a flexible coupling. This machine was, in its day, the fastest for its power in the world, doing 80 miles per hour.

Viking I was a twin tractor biplane driven by a 50 h.p. Gnome engine through chains. It was built by Mr. (now Captain) Horatio Barber at Hendon in 1912, and included many features of interest which are only now being properly developed.

ANCIENT HISTORY.

The "Daily News" tells the following amusing tale:—

"A curious story is told me on such high authority that I must believe it to be true, to the effect that at the very beginning of the war Lord Kitchener was visiting a certain flying ground in England, watching men fly and listening to what the Officer Commanding had to say. 'You ought,' said the Secretary for War suddenly, 'to learn to fly in regular formation.' The officer replied that that was impossible because machines could neither travel far enough nor stay long enough in the air. 'You will have to do it, all the same,' Lord Kitchener said, 'before this war is over.' In the opinion of airmen the suggestion was absurd at that time, but it has come true. Both by the British and the French reconnaissance and observation work is now carried out in regular battle formation."

One recalls that a "flight" of the R.N.A.S. manoeuvred over the Fleet at Spithead in regular formation during the Review in July, 1914.

QUESTIONS IN THE HOUSE.

On May 17th Mr. Ashley asked the First Lord of the Admiralty whether certain officers belonging to the late Armoured Car Division of the Royal Naval Air Service have recently been transferred back to the Royal Naval Air Service; whether these officers joined the Armoured Car Service in the early stages of the war; whether, on joining the Royal Naval Air Service, they have been given seniority as dating only from the date of their actual transfer back; and whether he will take steps to provide that the seniority of these officers will date from the time of joining the Armoured Car Service and not from the date of their transfer to the Royal Naval Air Service?

Dr. Macnamara: Officers who have transferred for general service in the Royal Naval Air Service keep their original seniority. It is only those who enter for flying who are graded with the

seniority of entry. In this respect they are treated exactly the same as officers of the Royal Navy who become flying officers.

Mr. Ashley: Do they get any advantage from the time they have served with the armoured cars?

Dr. Macnamara: If they enter for the general service, yes; if for flying, no; then they are graded from the date of entry. That is the case also with the Royal Naval officers entering the flying service.

* * *

On May 22nd, Mr. Asquith, in answer to a question by Commander Bellairs (Maidstone, U.) suggesting that, in the public interest, the Royal Flying Corps Committee which was appointed to investigate the charges made by the hon. member for East Herts should be instructed to present an interim report, and asking whether the Government would so amend the terms of reference as to empower the committee to decide if it would be in the public interest to proceed further with its investigations during this critical stage of the war, said:—The committee are fully alive to the desirability of saving the time of General Henderson and others as far as this can be done without prejudice to the inquiry. I understand that there are other charges, covering to some extent the same ground as those made by the hon. member for East Herts, and all these matters must receive full investigation. While the submission of an interim report is not impossible, it is not considered likely that by that means any appreciable saving of the time of Sir D. Henderson or of the officials or officers of his department would be effected. The terms of reference do not, I think, require any amendment, and, now that the inquiry has been started, it is not intended that it should be concluded until all the charges made have been investigated.

Mr. Pemberton-Billing (Herts, E., Ind.).—In view of the fact that the committee has proved a farce, will the right hon. gentleman give the House an assurance that a properly constituted committee will be appointed to investigate the charges? Mr. Asquith.—A properly constituted committee has been appointed, and those who have charges to make should make them before it. (Cheers.)

AIR CURRENTS.

During several recent hot days there did not appear to be any.

* * *

In the "Daily Telegraph" of May 18th appears an account of the progress of the war by a French correspondent, who, writing of the British line, says:—"The Germans are strongly reinforcing their artillery, while the increasing activity of their aviators is becoming very marked."

Which is, of course, a distinct contradiction to Mr. Tennant and Mr. Bonar Law, who assure us that we have such complete dominance. But perhaps this Frenchman saw with Gallic clarity of vision on the spot, and not through the many-lensed, rose-coloured, delay-action glasses of a Cabinet Minister.

* * *

The file of the following new company is now available for inspection at Somerset House:—

COERCEO (Ltd.), AEROPLANE MANUFACTURERS.—May 13th. £20,000 in £1 shares.

[It must be an Irish company.—Ed.]

* * *

Professor Pollard, speaking at the University College on May 18th, said the Zeppelin had been proved to be the most fragile of all weapons of war. If once hit they were done for altogether.

[It all depends upon the size, temperature, and nebulousity of the hit. Trust an exact scientist for an inexact statement. Terrible fellows these Professors when they get onto the question of aircraft.—Ed.]

* * *

The "Daily Chronicle" special correspondent in Paris contributed the following on May 19th. One hopes that the stories are not to be taken as a measure of the "Chronicle's" truthfulness, though they certainly remind one of its aero-political efforts in that direction.

Aerial duels are mostly fought at close quarters. That is to say, pilots do not usually waste their ammunition until they are within 15 to 25 yards of the enemy—[Can this be an error for 1,500 to 2,500 yards?—although it is on record that Navarre, with a lucky discharge, brought down a German machine from a distance of 200 yards.

Ramming is rare, but pilots in moments of desperation sometimes have recourse to this terrible form of aerial warfare, in which almost always both combatants are killed.

Recently a huge German three-seater, making its hundredth flight—[How did the French know it was not its first?—encountered a French aeroplane on observation work. Powerfully armed, the German had the advantage in every way, and soon the French machine, in flames and riddled with bullets, was about to collapse and fall to the ground. But the two Frenchmen mounting it were resolved not to fall alone. They rushed straight at the German. There was a terrible impact, and both aeroplanes crashed to earth, all five pilots being killed.

Another French pilot accidentally rammed a German machine, the tail of which he cut clean off, while he himself had the luck to

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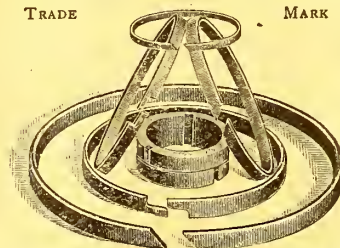
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lose only his engine, and to land safely in the French lines. The German was killed. [To lose only an engine is, of course, a mere bagatelle.]

On another occasion Guynemer, in a moment of rage because his mitrailleuse had suddenly got out of order, deliberately rammed the German machine which was trying to escape him. The wing of the enemy machine was smashed like glass. Guynemer was able to land safely. ["Smashed like glass" is a fine touch.]

* * *

Two Nottingham gentlemen, Messrs. George Wigley and John Ball, have contributed £100 each towards a £500 reward to gunners who bring down the next Zeppelin in England.

* * *

Home on short leave after a long spell of duty, Lieutenant-Commander Norman Craig, K.C., has been addressing his constituents in Thanet. It has been suggested that the division was practically disfranchised by his absence, but as long as the war lasted, he said, he was worth ten thousand times more in naval uniform than as a member of Parliament.

[Then either his own estimate of himself as an officer is astoundingly high, or his worth as a reformer of the Government is abysmally low.—Ed.]

With regard to air raid dangers on the east coast, he pointed out that they must consider the needs of Empire before local necessities, but, at the same time, very efficient steps had been taken to cope with the danger, and the duty of the inhabitants was to remain cool, calm, and collected, and not to squeal or whine.

[The typical good Party man's way of looking at things. His motto might be: "You are requested not to worry the man at the wheel—of the Party machine."]

PETROL PRICES.

The Asiatic Petroleum Co., Ltd., who are the distributors of "Shell" motor spirit, have sent out the following letter:—

We regret to have to inform you that, contrary to the hopes which we had entertained, we have been compelled to raise the price of our motor spirit to that of our competitors. If in addition to supplying the British and Allied Forces all over the world with the quantities necessary to them we had been able to supply motorists in this country with their requirements, we should have been pleased to adhere to the price at which we have been selling now for a very long time, but in view of our inability to supply the quantities required it was becoming clear to us that the policy which we had followed was not giving satisfaction to motorists in this country, and in fact was creating grave difficulties in many directions.

As soon as it became apparent that the demand was exceeding the supplies at present available, we invited the co-operation of motorists in economising the use of motor spirit, but our efforts in this direction were to some extent thwarted by an announcement made by our competitors that ample quantities were available. The result has been that no sufficient economy in the use of motor spirit has taken place, and with the further rise in price last week it was obvious that at the increased margin the situation became

altogether impossible. The new price will enable us to secure supplies from new sources, if it be found that these are still required by our clients, whom it will be our constant endeavour to serve, in so far as this can be done consistently with the national needs.

(Signed) THE ASIATIC PETROLEUM CO., LTD.,
St. Helen's Court, Great St. Helen's,
May 17th, 1916. London, E.C.

ORIGINAL PUBLICITY.

The enterprise of Mr. J. E. Huson, the managing director of the Engineering Timber Company, Limited, and Timber Supplies, Limited, has been commented upon in THE AEROPLANE on several occasions.

He is a man of considerable business experience and boundless energy, and the remarkable progress of his business during the last twelve months speaks volumes for his intimate knowledge of the requirements of the aircraft industry.

He has now issued an interesting book of fifty pages, under the title of "The Business World: Men and Methods of the New Georgian Era."

This book deals with the commercial history of Great Britain and her Colonies. It contains a great deal of interesting information and is quite useful as a book of reference. It is well illustrated with photographs of some of the finest Government buildings in the British Empire, and is quite an original kind of advertisement for the Engineering Timber Company.

No doubt Mr. Huson would send a copy to anyone writing to him at 9, Victoria Street, London, S.W.—D. W. T.

STEERING BY THE STARS.

The attention of those officers of the R.F.C. whose duty it is to go up in the dark to search of Zeppelins is drawn to a booklet by Mr. J. Dundas White, LL.D., M.P., called "Steering by the Stars." The booklet is very clearly written and suggests considerable possibilities for night flying, because a knowledge of steering by the stars would prove a useful check on an erratic compass. Incidentally, there is just a chance that a thorough knowledge of the stars might assist the aviator to discover a Zeppelin on a clear dark night because, if he were anywhere in the immediate vicinity of an airship, the hull of the airship would completely blot out a number of stars he would expect to see.

THE HENDON ACCIDENT.

A verdict of accidental death was returned on May 27th at an inquest on the body of Albert Charles Mahoney, thirty-two, of Bella Vista, Sunningfields Road, Hendon, who was killed while flying. The evidence showed that Mr. Mahoney, who was flying for his pilot's certificate, while at a height of 150 ft., and still climbing, attempted to turn, and that in consequence the biplane side-slipped and nose-dived to the ground. The machine fell on the railway line, and Mahoney was killed. The instructor, Mr. Henry Stevens, said he thought there was an error of judgment on the part of Mahoney, who should not have tried to turn so low down. The machine was in perfect order, and witness had used it the same morning.



This is not a photograph of the population of Great Britain taking an enemy air-invasion lying down for lack of adequate defence. It merely shows pupils of the Northern Aircraft Co. at Windermere watching a spiral by Mr. Lankester Parker.

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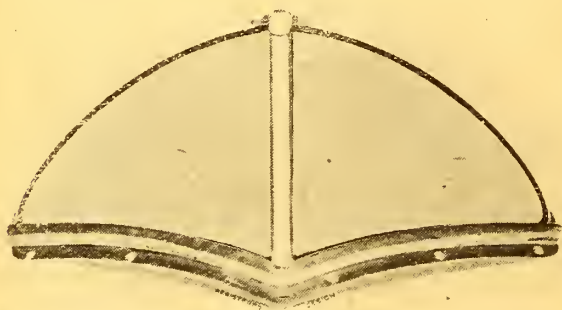
OLEO PLUGS FOR AMERICAN ENGINES.



In order to meet the increasing demand for sparking plugs for American engines, Messrs. Leo Ripault and Co., of 64a, Poland Street, W., inform us that they have introduced two new types of the famous Oleo plug, No. 6DC $\frac{1}{2}$ -in. taper and 6DB $\frac{3}{4}$ in. The illustration shows the $\frac{1}{2}$ -in. taper thread plug, and a very sound job it seems. The body of the plug is brass, and the insulation is of best French porcelain. One of the first sparking plug firms to turn their attention to the requirements of the aeroplane trade, Messrs. Ripault and Co. show the same promptitude to-day in catering for new requirements.

NEW AUSTER-TRIPLEX WINDSHIELD.

The illustration shows the very latest type of Auster-Tripix Windscreen for fast scout machines. It has been designed as an improvement on the official design of the R.A.F., which is made of celluloid, and weights about $9\frac{1}{2}$ ozs. The new Auster-Tripix Screen is $9\frac{1}{4}$ in. wide, $4\frac{3}{4}$ in. high, and is V-shaped, so as to offer the least possible resistance to the wind. The frame is of alumi-



nium, and is made by the Auster Company, whose name is familiar as makers of motor-car windscreens, and the two glass panels are of the famous Tripix safety glass, which, in addition to being as transparent as ordinary glass, possesses the enormous advantage of being shrapnel-proof.

As well as being V-shaped, the screen has a backward slope, so that the wind is deflected over the pilot's head as well as to each side. The total weight of this excellently designed little screen is $6\frac{1}{2}$ ozs., as against the R.A.F. pattern, which weighs $9\frac{1}{2}$ ozs.

TO NIGHT AVIATORS.

To the soldier a good sense of direction is of the highest advantage. Many a man has found himself in the enemy's trench instead of, as he thought, his own line. Especially at night does this happen, when he has nothing but the stars to guide him. Had he any knowledge of the position of the stars, the difficulty might have been solved. To spread this knowledge a little book has been written by Mr. E. W. Maunder (late of the Greenwich Observatory), which contains a set of simple star maps, enabling one to find the compass bearings at any time of any night when the stars are visible. The book is entitled "Stars as Guides for Night Marching." Mr. C. H. Kelly is the publisher. Such a book should also be of interest, in case of compass failure, to aviators who have to fly at night.

FOR PRISONERS OF WAR.

Muriel, Countess Helmsley and Mrs. Rowton beg to acknowledge the sum of £3 10s. from the employees of Vickers (Limited), Bexley Heath Works, towards their fund for prisoners of war in Germany.

DOPE POISONING.

At Bridlington, on Saturday, May 13th, Sir Luke White, M.P., county coroner, held an adjourned inquest into the circumstances of the death of Annie E. Baron, 21, of Bridlington, who died on May 7th. The deceased had gone in September to work at an aeroplane factory. She was engaged in sewing wings and in doping the wings after they had been sewn. There were fifty or sixty women so employed. Her sister-in-law, Mrs. Baron, the forewoman of the department, said the deceased had complained of indigestion several times, and she had also been slightly sick, but she never suspected the effects of the poison in the dope which was put on the wings by the women. She went home to Bridlington at Christmas at her suggestion, but became ill again soon after returning, and left in January. Dr. A. H. Field, of Bridlington, said the firm which had employed the patient had done everything possible to assist him in his treatment of the case. He diagnosed the cause of the illness as due to uræmic convulsions caused by working in an atmosphere of dope, which contained a

poison known as tetrachlorethane. The jury returned a verdict in accordance with the medical evidence.

The coroner and jury expressed sympathy with the firm and the bereaved relatives. The manager said that fuller information for manufacturers had now been received from the Home Office as to the treatment of such cases, and the evidence of sickness due to the poison. All that was possible was being done to safeguard the health of the girls.

[Considering the large number of doping fatalities which have occurred during the past eighteen months it seems extraordinary that even the heads of doping departments should be ignorant of the dangers surrounding the use of tetrachlorethane. The use of non-poisonous dope seems a much more practical scheme than to use the poisonous variety and then to try and "safeguard the health of the girls." Incidentally, with reference to Professor Lanchester's recent article in defence of R.A.F. dope, it would be interesting to know whether it is true that "Raftite" is actually non-poisonous, but no use as a dope, and that the dope specified, known as "A. 94"—or some such number—is poisonous, but so diluted as to be comparatively innocuous as a poison and comparatively useless as a dope. Also whether many manufacturers have refused to use either, and have gone back to dope made by firms on whom they can rely for quality.—Ed.]

A SEAPLANE INSTRUCTOR.

One of the most successful civilian aeroplane instructors in this country is Mr. J. Lankester Parker, of the Northern Aircraft Company's school at Bo'ness-on-Windermere.

Mr. Lankester Parker was educated at Thetford, Norfolk, and joined the Vickers' school at Brooklands on May 1st, 1914, at the early age of 17, and took his certificate, No. 813, at Brooklands on June 18th of the same year.

In the following spring he went to the Northern Aircraft Company's school at Windermere for extra practice, and showed such great promise that he was taken on by Mr. W. Rowland Ding, the managing director, as an instructor. Since becoming an instructor he has steadily increased in ability as a pilot. Despite the peculiar difficulties of alighting on water, especially in windy weather, he has never made a bad landing.

Quite recently Mr. Lankester Parker made a somewhat notable flight on a flying boat with a passenger, during which he reached an altitude of 9,300 ft. in 23 minutes, finally stopping his propeller and gliding the whole distance. It seems fortunate for Mr. Lankester Parker that one of the mists common to the Lake district did not blow down over the Lake while he was at this altitude, as the vision of a flying boat landing on a mountain side is too horrible for description. This flight was made in a very high wind and at times the machine was drifting backwards. During his stay at Windermere, Mr. Lankester Parker has flown for over 500 hours without mishap, which is an outstanding tribute to his ability as a pilot.



Mr. J. Lankester Parker, the successful instructor in seaplane flying at Windermere.

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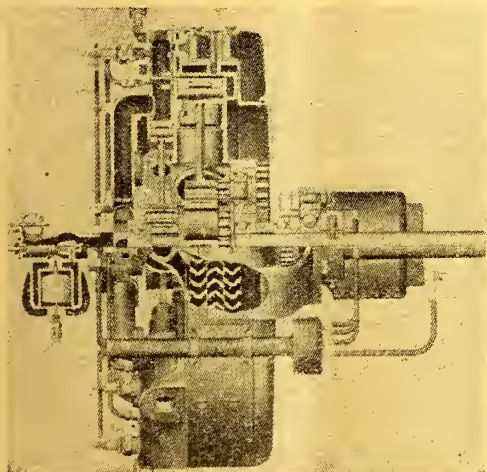
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The Committee appointed by the Home Secretary to conduct experiments for the purpose of testing the value of dry powder extinguishers reports that by far the best extinguishing agent is a plentiful supply of water, applied in the manner most convenient, and that the use of dry powder extinguishers is to be deprecated, as not only giving a misleading sense of security, but being practically useless for extinguishing or effectively controlling fires likely to be caused by bombs.

The Committee considers the application of water the best fire extinguisher of all.

HARRODS AND AVIATION.

It is very significant when a firm of the size and importance of Harrods Stores identifies itself with the aeroplane industry. Here is one more indication of the way in which aviation is gradually insinuating itself into our everyday life. The fact that one of the largest stores in Great Britain has instituted a new department of this kind does not appear to have attracted a great deal of attention, but it certainly should be put on record.

The enterprise of the flourishing concern over which Sir Richard Burbidge presides with such conspicuous ability is well known. Some time ago special garments for aviators were placed on sale in the motor clothing department, and at the present time a large and varied assortment of leather and other coats may be seen there, together with other useful articles such as caps, safety helmets, Triplex goggles, and so on. From a personal inspection one may safely say that the prices are most reasonable, and customers may be assured of courteous attention.

In the motor-car department there is an even more striking innovation. Messrs. Harrods are now agents for the Ruffy-Baumann School of Flying at Hendon, and they not only negotiate on behalf of prospective pupils, but are agents for the sale of the machines built at the Ruffy-Baumann Works.

The chief motor show-room at Harrods is a very handsome place, having originally been the ball-room of the Hans Crescent Hotel, and its timbered roof and stained-glass windows form an artistic and unusual setting for the complete Caudron-type biplane which is exhibited there. The accompanying illustration gives some idea of the appearance of the show-room.

The machine, which is a two-seater, is finished in the very best Ruffy-Baumann style, and is fitted with a 50-h.p. Gnome. Mr.

Kerr, who is manager of this department, is keenly interested in flying, and has every confidence in its future as a commercial proposition. He is willing to give any information possible to those who contemplate learning to fly, and his confidence in the Ruffy-Baumann School is shown by the fact that one of the members of his staff, Mr. Fanshaw, is now taking lessons in his spare time.

Perhaps the day is not so far distant when aeroplanes will have a landing place on the roof of Harrods Stores, and passenger services will be running to the suburbs and the provinces, as already depicted in the advertisements of Messrs. C. C. Wakefield and Son which have appeared in these pages.—D. W. T.

THE RUFFY-BAUMANN SCHOOL.

Mr. Edouard Baumann has returned from a short visit to France, the chief object of his trip being to acquire more engines, in which he was entirely successful. A new 60 h.p. Caudron-type machine is now completed at the works at Old Hendon, and only awaits the piling up of one of the present school machines, or the erection of the marquee, to be transferred to the aerodrome for active service at home.

The Ruffy-Baumann School is short of room, and the staff have been too busy lately to undertake the putting up of the marquee which formerly housed the Mann biplane.

FOR AIR MECHANICS.

It is interesting to hear that the Daimler Co., Ltd., are training parties of air mechanics of the Royal Flying Corps in the handling of petrol engines, and a special text-book, written in popular style, has been prepared for the use of the men. In addition, each receives a copy of the printed specification of the engine upon which he is being trained, and this specification includes many useful notes of a technical character, calculated to assist him in his work during the instructional course and afterwards at the front.

The men make notes and sketches of what is likely to be of value to them and a personal report is sent to each man's C.O. on his progress and ability. The scheme must be commended as a very sound one, as by this means air mechanics, many of whom are, relatively speaking, novices in the care of aero engines, have an opportunity of learning the small tricks of the trade, which are so essential in keeping delicate machinery up to the mark. The



The Combined Aircraft and Motor Department at Harrods.



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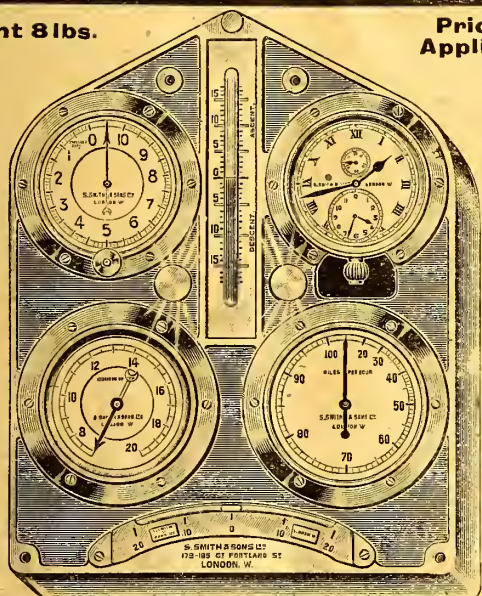
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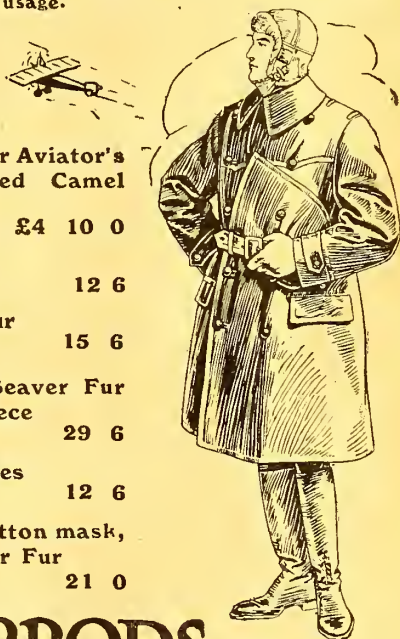
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text-book, which is entitled "The Petrol Engine, the Magneto, and the Carburettor," has been written by Mr. A. E. Berriman, chief engineer to the Daimler Company. The three long chapters on the Petrol engine and its two chief component parts are taken bodily from "Motoring" and relate more particularly to motor-car engines, but, of course, the principles described are equally applicable to aero engines.

The text-book terminates with some interesting notes on Aviation for the benefit of those anxious to understand something of the inwardness of the aeroplane itself, and tables of sines and tangents and logarithms will be useful to those mathematically inclined.

The whole of the edition published has been handed over to the Flying Services, but presumably any man interested could obtain one by formal application to his Flight Commander.

WAKEFIELD PROGRESS IN THE AIR.

While everyone connected with Aviation knows that Wakefield oil lubricates nine-tenths or more of our aeroplane engines, and that it has become established as the standard oil for aero engines, whether rotary or stationary, air-cooled or water-cooled, few people know how or why the Wakefield Oil Company has reached such an enviable position.

In the early days of aviation the Wakefield Company was already a big concern, and generally accepted as experts on lubrication. Their oil was, and is, used almost exclusively on 25 different railway systems in Great Britain alone, and it is also one of the most popular oils at the present time for ordinary motor-car engines and motor-bicycle engines.

A matter of five years ago now the first aviation meeting was held in this country at Bournemouth, and Mr. Fisher demonstrated his firm's interest in the new mode of locomotion by attending with plenty of Wakefield oil and expert advice. Since then Mr. Fisher has kept in close touch with every development in aeronautics—he is always to be found on the spot ready to give the benefit of his great experience and expert knowledge on every problem of lubrication, and no matter what difficulties the engine presents Mr. Fisher can produce the oil which will enable that engine to run with the highest degree of efficiency. For this reason, as well as because of the great excellence of Wakefield lubricants, the firm has risen to its present happy position in the world of aviation. If everybody had the confidence in the future of aeronautics displayed by the Wakefield Oil Company we would not have to wait perhaps five years for the great developments which Mr. Fisher evidently expects within the next two years, to judge by the very striking series of advertisements which he is at present displaying in this and other aeronautical papers.—J. F. A.

STURTEVANT AEROPLANES.

The U.S.A. Government appears to be answering the call for more aeroplanes for the American Air Services to a limited extent and a number of high-power machines are being bought.

A recent order is for four Sturtevant, Type S., 140 h.p., military tractor biplanes, which will be employed on the Mexican expedition under General Pershing. It is hoped that these machines, with their large amount of reserve power and big carrying capacity, will tackle the meteorological problems of Mexico.

As is well known, the Sturtevant Co. build their own engines and fit them with gravity feed carburettors connected to the cylinders by aluminium water-jacket inlet manifolds, the water-jackets being cast integral with the manifolds.

PLAY-TIME.

On Saturday, May 20th, the hard-working employees of the Whitehead Aircraft Co., Ltd., to the number of almost 400, enjoyed a day at Southend at the invitation of the founder of

the business, Mr. J. A. Whitehead, to celebrate the firm's first birthday.

About a year ago Mr. Whitehead started business in a small building that used to be a skating-rink, and his first pay-sheet total did not exceed £10. To-day he manages a large up-to-date factory, and last week's pay-sheet total was somewhere round about £1,000.

After lunch one of the leading councillors of Southend, in a short speech, said that, as far as he could see, Mr. Whitehead was a model employer, and to judge by the hearty way in which the 400 employees showed their approval of this compliment one was inclined to believe that he was right.

Mr. Whitehead, replying, said that the rapid progress which the firm had made was largely owing to the splendid *esprit de corps* of his workers. He mentioned that he had just received an intimation that the Government would buy as many machines as the firm could turn out. In the afternoon Mr. Whitehead chartered a number of boats and took the whole party for a sail.

THE WEEK-END AT HENDON.

The continuance of brilliant summer weather brought large crowds to the Hendon Aerodrome on Saturday and Sunday last. There was a good deal of flying, and passengers were very numerous. All the Grahame-White machines were engaged during Saturday afternoon, and Mr. Grahame-White himself made several flights in the three-seater, accompanied each time by passengers. Other pilots flying the same machine in turn were Messrs. Hale, Pashley, Biard, Winter, and Russell. Mr. Beatty was out on a 50 h.p. Beatty-Wright, and Mr. Mitchell on a 45 h.p. Beatty-Caudron. Other displays were given by pupils from the Hall School and the London and Provincial School.

A good deal of interest was aroused by the appearance of a new Sopwith which Mr. Hawker brought over from Brooklands, and also a Handley-Page machine.

On Sunday, several Grahame-White machines were again fully occupied during the afternoon and evening, the pilots being Messrs. Russell, Winter, Pashley, and Biard.

Mr. Sykes was also flying on a 45 h.p. L. and P. biplane.

Special attractions are being arranged for the Whitsuntide holidays, and further details will be given in the next issue of THE AEROPLANE.

SCHOOL REPORTS FOR WEEK ENDING MAY 21st. HENDON.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors for the week: Messrs. Edouard Baumann, Felix Ruffy, Ami Baumann, Andre Thomsen, and Clarence Winchester. Pupils with Instructor: Messrs. Dobson, Wilson, Edgar, Car, Portella, Fraser, Torres, Maya, Bailey, Di Balmi, Straus, Fanshawe, Westlake, Williams.

Straights or rolling alone: Messrs. Bailey, Williams, May, Winter, Fraser, Whitaker, Hoskyns.

Eights or circuits: Messrs. C. W. May, Hoskyns, Baron D'Opstael.

Machines in use: 50 and 60 h.p. Ruffy-Baumann tractor biplanes.

Certificates taken during the week by Messrs. C. W. May and Hoskyns. Half tests by Baron D'Opstael.

AT THE HALL SCHOOL.

With Mr. P. G. Allen: Messrs. Hucklesby, Skinner, Russell, Graham-Davis, Gaskell, Illingsworth, Rand, Deane, Collier, Gudgeon, Skinner, Russell, Graham-Davis showing great improvement.

With Mr. Charles Bell: Messrs. Cosgrave, Mahoney, Smith, Glegg, Duncan, Armitage, Collier, Halliday, Deane, Gudgeon, Cosgrave, Smith, and Mahoney ready for brevet machine.

With Mr. C. M. Hill on 70 h.p. dual-control: Messrs. Pennell, Taylor, Warwick, Rochford, Rand. All making good progress.

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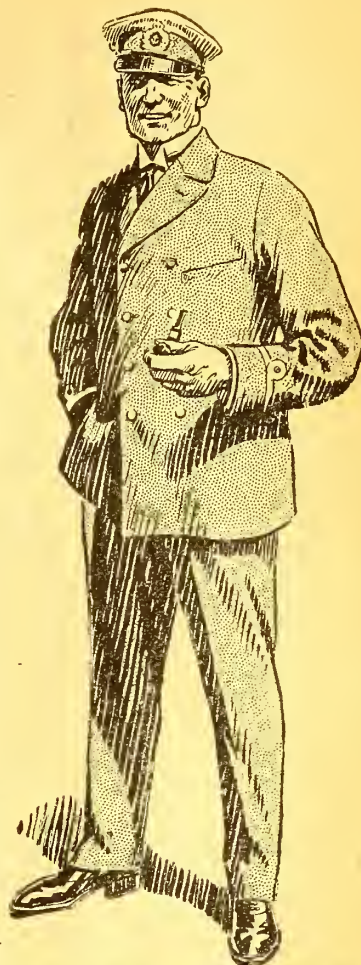
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AT THE BEATTY SCHOOL.

Instructors: Messrs. G. W. Beatty, G. Virgilio, H. Sykes, A. E. Mitchell, H. Fawcett.

Pupils out during the week: Messrs. Tjaarda, Smith, le Champion, Cathbert, Gliksten, Turner, Atkin, Barrow, Martin, Mossop, Stanley, Gaskin, Hoskins, Brewerton, Phillips, Earl, Skeet, Davy, Garlick, Drewery, Kay, Edwards, McPherson, Mitchell, New, Jones, Venables, Towson, Sach, Elliott, Clift.

Certificates taken by Messrs. J. Tjaarda and H. L. Smith on Beatty-Wright machines, and Messrs. H. C. Mossop and W. N. Patterson on Caudrons.

Machines in use: Beatty-Wright dual control and single-seater propeller biplanes; Caudron dual-control and single-seater tractor biplanes.

AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors for the week: Messrs. W. T. Warren, M. G. Smiles, and W. T. Warren, jun.

Pupils receiving instruction: Messrs. Evernden, Jones, Birkbeck, Daly, Brake, Sivewright, and Deacon, rolling; Messrs. Whittingham, Morley, Kent, Moore, Rimer, Pulford, and Dawson, straights.

Pupils doing figures of eight or circuits alone: Messrs. Egelstaff, Aldous, and Parsons.

Certificates were taken during the week by Messrs. F. G. Parsons and T. Aldous.

Machines in use: Three L. and P. tractor biplanes.

AT THE BOURNEMOUTH SCHOOL.

Instructors: Messrs. S. Summerfield and Brynildsen.

Pupils rolling alone: Messrs. Kennedy, Barlow, Brandon, Pritt, Scaramanga, Daniel, Green, Turner, Hammersley, and Hinchliff.

Straights alone: Messrs. Morley, J. Wilson, O. Wilson, Morris, Adamson, Smith, Gordinne, Barlow.

Figures of eight and circles alone: Messrs. F. Simpson and Morley.

Certificate taken by Mr. Frank Simpson, who attained a height of 1,300 feet, and volplaned down, landing right on the mark. His flying was exceedingly good.

Machines in use: 35 h.p., 45 h.p., and 60 h.p. Caudron tractor biplanes.

Remarks: On Wednesday Mr. Summerfield gave various exhibition flights before a fair-sized crowd. The usual number of visitors were again present on Saturday, and witnessed some extraordinary flying by the same pilot. On one flight he attained a height of 3,000 feet, indulging in all sorts of evolutions with engine off. Towards the evening two passengers were taken up, one being Mr. C. Hudson, of Birmingham.

SCHOOL REPORTS FOR WEEK ENDING MAY 28th.

AT THE GRAHAME-WHITE SCHOOL.

Instructors: Messrs. Biard, Hale, Pashley, Russell, and Winter. Straights with instructor: Messrs. Ballard, Bathurst, Cockelle, Cooper, Conald, Edwards, Forster, Goodhart, Hodgkinson, Kaye, Phillips, Rodocanachi, Ward, and Welinkar.

Landing practice: Messrs. Smith and Sloden.

Eights or circuits with instructor: Messrs. De Beer and Spenser.

Certificates taken by Messrs. Burrell, Eichelbrenner and Matthews.

Machines in use: Grahame-White biplanes.

AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors: Messrs. W. T. Warren, M. G. Smiles, F. G. Parsons, and W. T. Warren, jun.

Straights or rolling alone: Capt. A. Nathan, Lieut. Deacon, Messrs. Sivewright, Brake, Daly, Birkbeck, Jones, and Evernden, rolling; Messrs. Moore, Pulford, Dawson, and Captain Henderson, straights.

Eights or circuits alone: Messrs. Egelstaff, Henderson, and Morley Kent.

Certificates taken by Captain C. Henderson, and Messrs. Egelstaff and Morley Kent.

Machines in use: Three tractor biplanes.

AT THE BOURNEMOUTH SCHOOL OF FLYING.

Instructors: Messrs. S. Summerfield and Brynildsen.

Pupils rolling alone: Messrs. Kennedy, Pritt, Scaramanga, Green, Daniel, Brandon, Turner, Hammersley, Hinchliff, Little, Eyston.

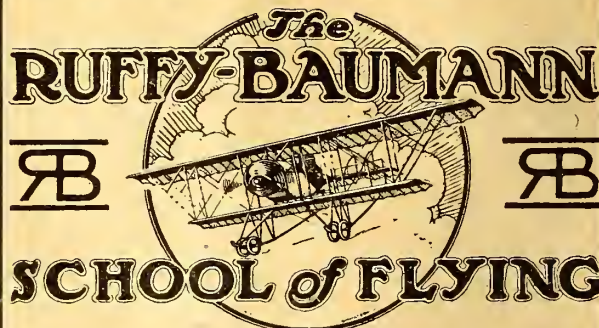
Straights: Messrs. O. Wilson, J. Wilson, Smith, Gordinne, Adamson, Barlow, Morris.

Eights or circuits alone: Messrs. Morley, Gordinne, Morris, and J. Wilson.

Certificate taken by Mr. C. C. Morley, who reached 2,000 ft., and circled the aerodrome with engine off, showing great mastery of the controls.

Machines in use: 35 h.p., 45 h.p., and 60 h.p. Caudron tractor biplanes.

The usual exhibitions were again given on Wednesday and Saturday afternoons by Mr. S. Summerfield on the 60 h.p. Caudron.



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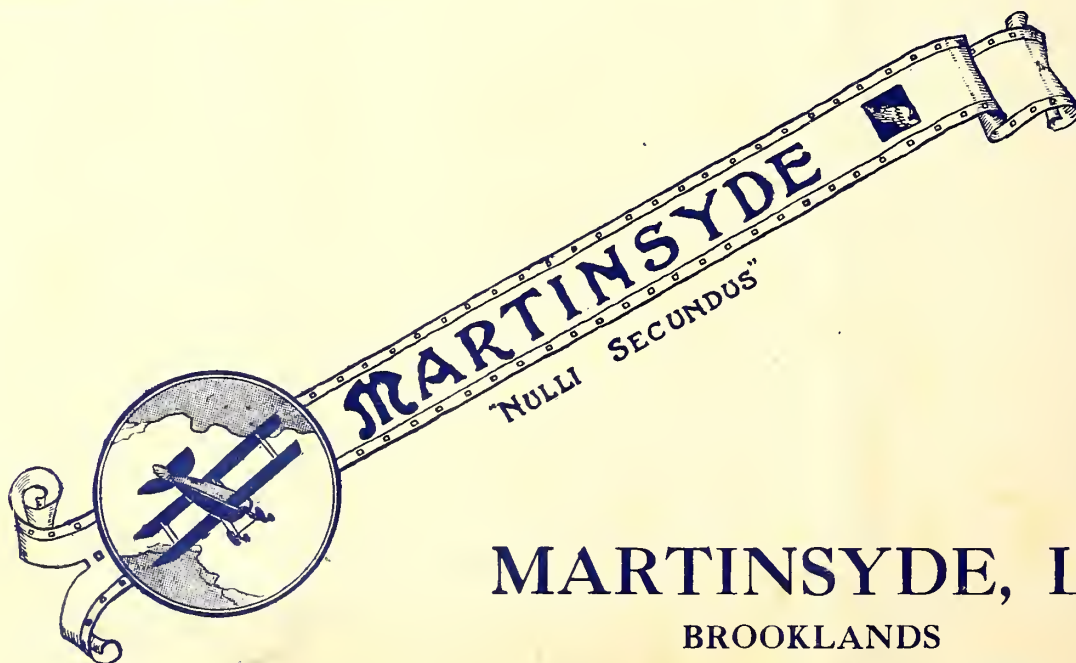
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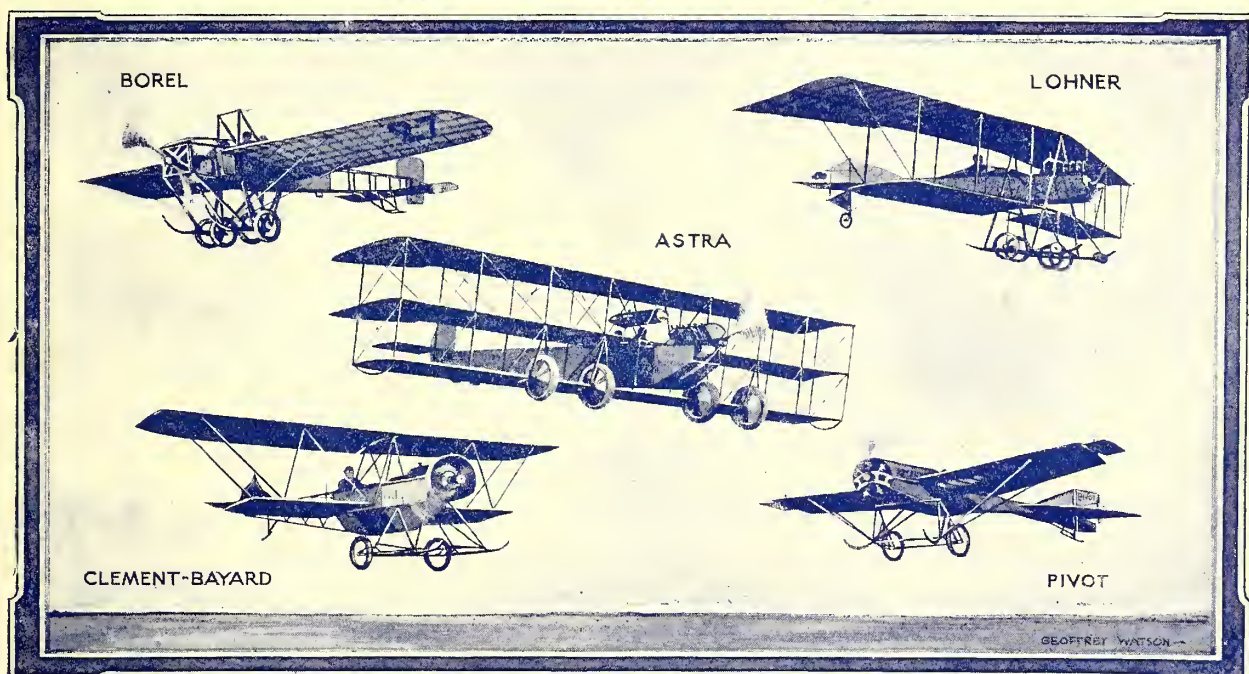
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ON THE FUTURE PERSONNEL OF THE R.F.C.

It appears that among the numerous other wise decisions at which the officers now in control of things aeronautical at the War Office have arrived, is the fact that civilian flying schools may be of definite use in helping to win the war. For years this paper has advocated the wisdom of the German system of encouraging civilian schools as a valuable source of supply of service pilots. Over six months ago it demonstrated on official figures that the civilian schools are at worst a very useful adjunct to the Service schools, and that if properly used they may be made to save money for the country.

One learns, therefore, with considerable interest that the Committee of the Royal Aero Club has drawn up a set of Regulations for Schools, and that the Director of Air Organisation at the War Office—who is in command of a very important department under the Director-General of Military Aeronautics—has intimated that if civilian schools comply with these regulations, officers on the waiting list of the Royal Flying Corps will be encouraged to make use of them for preliminary training.

None can ask for fairer treatment than that. It is actually looking for rather too much if one expects either the Admiralty or the War Office to send pupils to the civilian schools and pay their fees whether they pass their certificate tests or not. The Admiralty did this with one or two specially favoured schools for a while, and on the whole has little cause to regret the bargain, for most of these civilian-trained pilots have turned out well, and many of them have already won high distinction on active service.

It is, however, much more reasonable to "encourage" people on the waiting list to go to the civilian schools at their own expense, for then the aspirant to aeronautical honours has to give evidence of the faith which is in him by putting down his good money for the school fee, in the full knowledge that if he fails to become a pilot and is rejected by the R.F.C. he will not get his money back.

A MINOR CRITICISM.

Such a system of "encouragement" is not, of course, impervious to criticism, for one assumes that the man who has taken his certificate at his own expense will be given precedence in appointment (on probation) to the R.F.C. over those who merely "wait and see" how much longer it will be before they are called up to show at the Government's expense whether they have any aptitude for flying. Thus, in a way, the man with money will have a pull over the man who has none, for the moneyed man can take his course of training up to the point of passing for his Royal Aero Club certificate, and so accelerate his calling up, whereas the man who cannot afford to do so will have to wait till the apparently interminable Waiting List dwindles down to his position thereon in spite of men with special qualifications or special influence passing up the list over his head.

Nevertheless, one doubts whether there is any serious disadvantage in the proposed system, for history shows that the British officer was just as brave and just as capable in the days when commissions were obtained by

purchase and by influence as he has been since the days of competitive examination. In fact, if officers on the Waiting List are definitely advised by the War Office to take their preliminary training at their own expense it may result in pilots of even better quality being obtained quickly, for the youngster who is really keen on flying will move Heaven and Earth to get hold of that £75, and risk it on his belief in his own ability, whereas the young officer who merely thinks it would be rather the smart thing to belong to the R.F.C. and applies for a transfer on that account, is more likely to be content to remain on the waiting list—and to curse the War Office for the delay in calling him up for training as an aviator.

A MATTER OF PERSONNEL.

Whether an aspirant aviator is to be trained at his own or at the country's expense, there is one little matter which the Military Aeronautics Directorate might discuss with the still higher authorities. That is the question of how future pilots are to be obtained.

It is obvious that the only home-grown source of supply from civilian life is the public schools. Many youngsters who will soon reach the age of eighteen are already learning to fly at civilian schools at the expense of their families, with the intention of applying for the R.F.C. on reaching military age. Apparently, under present regulations, they will have to pass through the ranks, as no commissions are now given direct from civil life except where a man has special qualifications. These youngsters may, perhaps, be given R.F.C. commissions direct if they are in their school Cadet Corps, or are definitely studying for Sandhurst or Woolwich, though in the latter cases one assumes that they will have to do their course first and serve with a regiment for a while before being handed on to the R.F.C.

There is also a source of supply from the Colonies, but here again one assumes that no commissions will be given direct into the R.F.C., but that applicants for commissions will have to serve in the ranks first—as in the British Army. Moreover, one must remember that by now all the best men of an age at which they are likely to make decent pilots are already in the Army of their particular Colony. Those remaining at home may be excellent in their way, but the fact that they have not yet joined up indicates a lack of that adventurous temperament which makes the best class of service aviator—for it must be remembered that active-service flying is not at all like peace flying, and that some of the most highly skilled and otherwise useful pilots have evinced the strongest objection to crossing the enemy's lines.

EXTRACTS FROM THE ARMY.

All of which brings one up against the worst snag of all, namely, that future pilots have to be obtained from the commissioned and non-commissioned ranks of other arms of the Service.

Now, when an officer or man applies for R.F.C. his application has, quite naturally, to go through his immediate superior officer and through all the hierarchy of the Army to the War Office, and then to the Military Aero-

navies Directorate. It is only natural, if a young officer is a good platoon commander, that his company commander, and his battalion commander, should wish to keep him, and so should either refuse to forward his application, or should do so in such a way as to ensure his not leaving his regiment. Similarly a smart N.C.O. may have his application choked off by his platoon commander. Also, it must be fairly clear that the mere fact of an officer or man wishing to transfer to another arm proves that he is not keen on his own regiment, and this may result in his C.O. resenting his application for transfer as a personal reflection on himself, refusing to forward it, and having a "down" on that man for the rest of his service. Which again is only natural, for in the ideal regiment, with an ideal C.O., every officer and man would be so infected with *esprit de corps* that none would consider for a moment the question of leaving it even for a Staff job.

AN IMPERIAL AIR SERVICE ARGUMENT.

This, quite incidentally, is a strong argument for the Imperial Air Service scheme. For if an R.F.C. officer says, as I have heard some say,—“Of course, I’m an R.F.C. officer, but first and last I belong to the Mudshires,”—or sappers, or gunners, as the case may be—then he has not the *esprit de corps* which an Air Service officer should have.

On the other hand, if an officer throws over his old regiment with which he has fought and suffered and lived and laughed for months on active service, and contrives to have himself transferred to the R.F.C., one cannot help having suspicions as to whether he is really quite the type of man one wants. Either he has been with a bad regiment, and so may import nasty habits into his squadron, or his temperament lacks loyalty, and he is therefore not likely to give himself body and soul to his new corps.

The man who shifts about from regiment to regiment, or arm to arm, is always apt to remind one of the fair divorcee whom her co-respondent refused to marry on the grounds that as she had not been faithful to her first husband he did not see why she should be faithful to her second.

THE APOSTOLIC SUCCESSION.

An officer may be perfectly and absolutely loyal to his new unit, and he may have had excellent grounds— incompatibility of temper, neglect, cruelty, or what not—for leaving his former unit, but somehow one still has more respect for the officer who commands the battalion in which he served as a subaltern than for the officer who has been appointed from outside and who has none of the regimental tradition.

The wonderful spirit of the old British Army—of which, unhappily, very little is now left—is summed up in that little poem of Mr. Kipling’s about “The Men who Fought at Minden.”

Lord Kitchener showed his wisdom in maintaining in the new armies the old regimental names. No matter how many battalions a regiment may have, every officer and man is in the direct apostolic succession from the men who won the regimental honours. The latest joined conscript drafted to the 25th or 35th battalion (or whatever it may be) of the Gloucesters, is the successor of the men who fought back to back in the Peninsular and won the “Fore and Afts” the proud distinction of wearing their helmet badges both back and front.

It is thus that *esprit de corps* is built up, and those who argue for an Imperial Air Service have a strong argument in the fact that to give of his best a man should belong heart and head, body and soul, to the regiment, arm, and service which he first joined, and his unit should be father and mother, wife and children to him.

THE TRANSFER QUESTION.

Thus one may appreciate the difficulty of transferring officers from other arms to the R.F.C.—or from the Navy

to the R.N.A.S., for that matter. The most loyal type of man is not likely to want to leave his own unit, and the adventurous spirit who is also an efficient officer may not be able to obtain permission to transfer. Thus, to avoid loading the R.F.C. in the future with second-raters, of whom their C.Os. are rather glad to be rid, it seems that the High Authorities should endow the R.F.C. with some prescriptive right to take officers from other units, and that officers and men desiring to join the R.F.C. should have an absolute right to have their applications forwarded without delay, accompanied, of course, by the usual confidential report—which the R.F.C. authorities can interpret in the light of their own understanding.

THE SCHOOL QUESTION.

After provisional acceptance, as personally suitable, the school question then arises. It has been argued before in this paper that up to the point of taking his Aero Club certificate there is nothing to choose between a pilot trained at a Service and at a civilian school. Some civilian schools train better than some Service schools, and one doubts whether the best Service school would train a good man to fly up to that point better than would the best civilian school.

Moreover, some of our very best Service fliers have been the most appallingly bad, and, apparently, stupid, pupils, and it is possible that such men might be hustled out of a Service school when more patient tuition at a civilian school would get them past that curious critical point at which a pilot suddenly “finds” himself.

Also, it seems that it is better to try to teach a man to fly and find out whether he is any use, before spending any more money on him. Naturally a pilot must also be a soldier of sorts, but he can learn the elements of soldiering between the time when he takes his “ticket,” as the R.Ae.C. certificate is called, and when he qualifies for his R.F.C. wings as a trained aviator fit to go on active service.

It would surely cost more to take a 2nd Lieutenant on probation, and sit him down for weeks to learn soldiering at a kind of R.F.C. Sandhurst, pending there being a vacancy at a Service flying school, and then have to throw him out because he later proved of no use in the air, than it would to send him to a civilian school at his own expense—on leave from his unit—knowing that if he failed to fly his training would cost the country nothing.

This seems to be the very sensible conclusion at which the War Office has arrived, and naturally, if justice is to be done all round, there must be uniformity in the regulations governing the schools, and the schools must be subject to rigid inspection. One would, in fact, prefer to see them all under military supervision, like armament factories, for it would be doing the gravest injustice to a pupil if, after joining a school, he found it less well conducted than another with which he became acquainted later.

The Regulations themselves are of the simplest and read thus :—

CIVILIAN FLYING SCHOOLS.

REGULATIONS FOR SCHOOLS.

APPROVED BY THE ROYAL AERO CLUB.

- (1) Every instructor shall have obtained an F.A.I. Aviator’s Certificate and shall have been fifteen hours in the air in control of a machine, after obtaining his Certificate.
- (2) The maximum number of pupils for each machine in flying condition shall be six.
- (3) The maximum number of pupils for each instructor shall be eight.
- (4) The minimum proportion of reserve machines to replace those undergoing repair shall be one for every three in use.
- (5) The minimum time a pupil shall be in the air in the aggregate before making the necessary flights for an

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Aviator's Certificate shall be five hours, of which at least two hours shall be solus.

(6) All Schools shall keep a register of pupils under instruction, and a book giving full particulars of all flights made by them, which shall be open to inspection at any time without notice by officials of the Royal Aero Club appointed for that purpose.

(7) The Flying Ground shall be kept clear while a pupil is carrying out the tests for an Aviator's Certificate, and each school shall undertake not to allow any of its pupils to fly while a pupil of another school is carrying out the tests for a Certificate.

(8) Particulars of all breakages and repairs to machines shall be kept in a book provided for that purpose, which shall be open to inspection by the officials of the Royal Aero Club.

(9) The "Rules of the Air," as set out in the Competition Rules of the Royal Aero Club, shall be observed by all pupils.

(10) Machines used for instructional purposes shall be inspected frequently by an instructor during the day's work, and always after a bad landing, and by a competent mechanic each day.

(11) All machines shall be inspected at any time without notice by an independent inspector appointed by the Royal Aero Club.

(12) Disputes between pupils and schools shall be submitted to arbitration by the Royal Aero Club.

The Royal Aero Club, 166, Piccadilly, W.

May 24th, 1916.

Rule 1 is fair enough, except that in expanding the schools there may be difficulty in finding new instructors who have had the necessary 15 hours' flying. This difficulty can, however, be got over by the very simple process of engaging as instructors R.F.C. pilots (either officers or N.C.Os.) who have been invalided from active service. They would certainly, in most cases, improve the tone and efficiency of the schools, and would be able to give pupils useful hints about active service flying.

Rule 2 admits of no argument, nor does Rule 3.

Rule 4 may be a little difficult to carry out in practice, for an epidemic of smashes might put the balance on the other side. Much of the difficulty can be overcome if the War Office will help the schools in the matter of matériel. For example, the mechanics of most schools would make quite useful school machines out of machines which the

R.F.C. would scrap. Obsolete types, machines much damaged by exposure, and so forth, could be faked up to do well enough for school work, long after the R.F.C. have done with them.

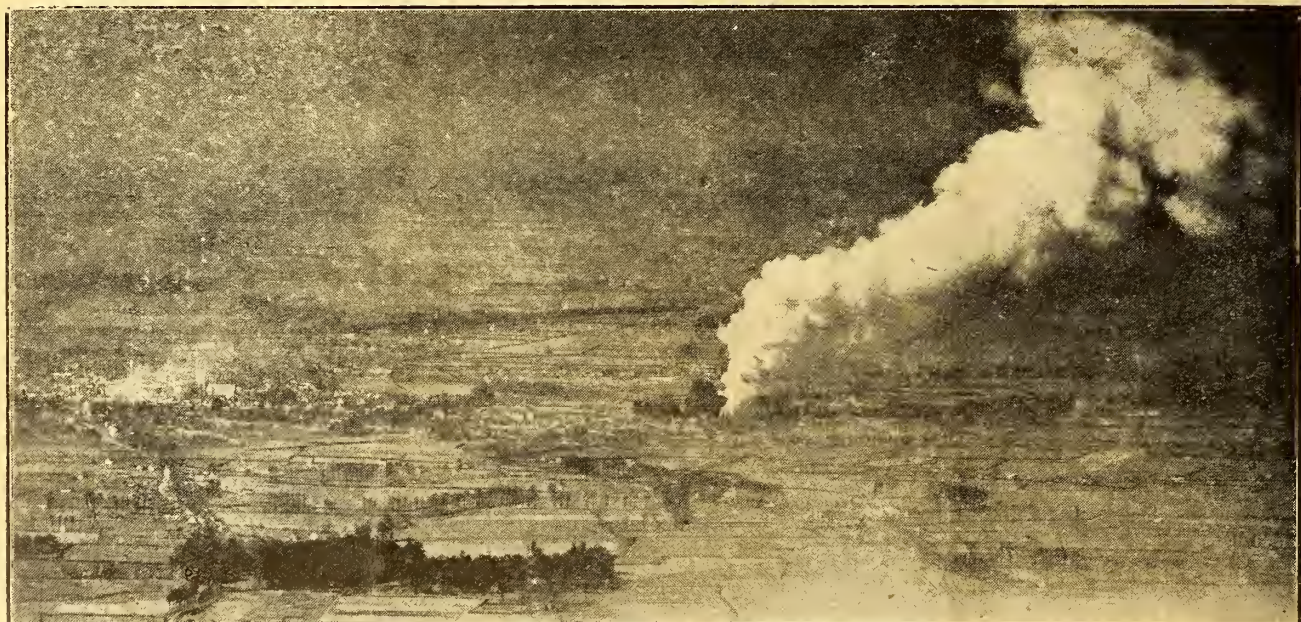
Also, unless the stuff has been burnt or melted down, there is enough in the way of old engines, 50-h.p. Gnomses, small Anzani's, and so forth, knocking about the Royal Aircraft Factory at Farnborough, to equip as many civilian schools as exist at present. All this "junk," as an American would call it, might be sold cheap, and if the school mechanics were allowed to rout round in the R.F.C. scrap-heap for a day or two they would probably find it a veritable spare-part mine.

For school machines, also, much material scrapped by A.I.D. and I.A.D. inspectors for minor defects could be used with perfect safety, and sold cheap. This would economise material, some of which is difficult to get. Ingenious school mechanics could easily build perfectly good wings for the machines out of scrapped spars for B.E.2cs., and there must be some thousands of such spars lying about the country—and similarly with other parts.

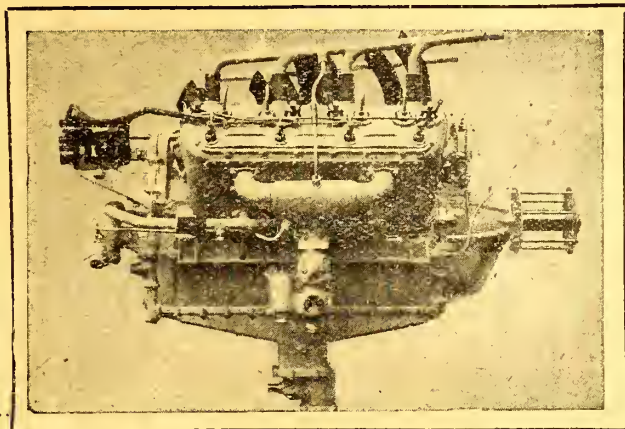
Rule 5 is thoroughly sound. It may add a trifle to the expenses of running the schools, but if the War Office acts up to its promise of encouragement the increasing numbers of pupils should make up the difference. One assumes that if a pupil were obviously fit to go for his certificate flights after an hour with an instructor and an hour alone—as some are—there would be no objection to his doing so if a spell of fine weather happened along, and that the granting of the certificate would be delayed till the remaining three hours' flying were logged to his credit. This would merely mean adding a five-hours' air experience qualification to the old acrobatic tests, which would be wholly excellent.

One wonders, though, whether the R.F.C. insists on five hours' air experience at military aerodromes before a pupil goes for his certificate. Horrid visions arise of pupils at Brooklands in the early days of the military school there, staggering and wallowing through their tests in a manner which indicated five minutes' rather than five hours' experience. But probably the higher intelligences now in control have changed all that.

Rule 6 is also excellent. It may teach school proprietors, employees, and pupils proper businesslike habits. Also, rigid inspection is necessary to ensure fairness to all.



THE FIGHTING LINE.—A photograph of a town and its environs in Flanders suffering from the effects of shell fire at long range. The photograph was taken from an aeroplane low down, and gives a good, if somewhat misty, idea of the type of country in which the fighting is taking place, and of its aspect when heavy artillery is at work

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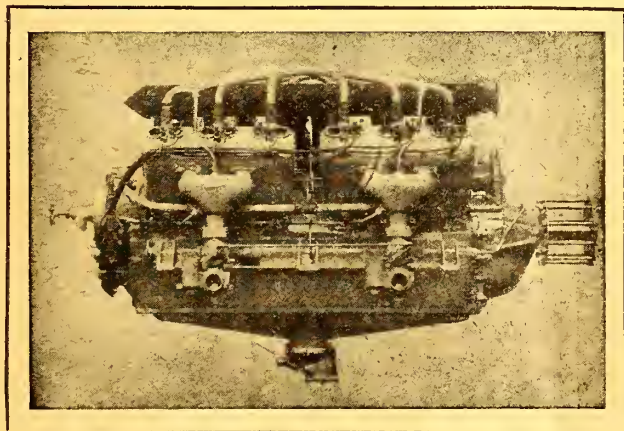
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Rule 7 is certainly necessary in a small aerodrome, but might be shelved if the schools expand to bigger aerodromes.

Rule 8 is as necessary as Rule 6. Whoever thought of it deserves commendation, for necessary as it appears when one sees it, anyone might have failed to think of it.

Rule 9 is equally necessary, as a recent accident at Hendon showed.

Rule 10 is probably carried out already at every school, at least as carefully as at the military schools. The scarcity of breakages of school machines in the air, despite the amount of hard work they do, shows that the instructors value their necks.

Rule 11 is a necessary corollary to Rule 10, and Rule 12 is just plain common sense.

THE SCHOOLS' CHANCE.

Herein, then, lies the one chance of salvation for the civilian schools, which must otherwise expire for sheer lack of human material. Their disappearance would deprive the nation of very valuable sources of supply and would result in a number of men who know their jobs thoroughly being pushed into other work where their experience would be wasted. We should also be deprived of the help of sundry very experienced friendly aliens, to whose training the Services owe some of their best pilots.

The chief difficulty ahead of the schools lies in the matter of price. The War Office will not pay more than £75 to a pilot who has taken his certificate at his own expense—Germany used to pay the manufacturers' schools £200 a head or so, if I recollect rightly, for tuition and keep as well.

Therefore if the schools charge £100 or so every pupil loses £25 for the privilege of accelerating his appointment. With present prices of material and labour, and fuel, it is doubtful whether even £100 pays, unless a school has remarkable freedom from breakages.

Therefore the alternative is between £100 per head with

AIRCRAFT IN THE HOUSE.

On May 31st **Mr. Tennant** (Berwickshire) asked by **Mr. Hogge** (Edinburgh, E., L.) whether Lord Northcliffe, who had been arraigning the Air Service for many months, had been asked to give evidence before the Air Inquiry, whether he had refused, and if so, what were his reasons, replied:—It is, of course, for the president and members of the Air Committee to settle their own procedure, and what witnesses they will call. I am not aware whether they have thought fit to call Lord Northcliffe or not, nor whether, if he has been called, he has accepted or refused, nor in the event of his having refused what were his reasons. I think the House must wait the presentation of the report before expecting information on such points as those in this question.

On June 1st **Mr. Billing** (Hertford, Ind.) said he had had occasion to criticise the Government on air questions, but before the House adjourned he wished to congratulate them on the vigorous steps they had now taken. They were going in the right direction.

After expressing sympathy with Mr. Tennant in the injury to his son, Mr. Billing said that when he read in the "Times" of the accident in which Lieut. Tennant had been injured, and which stated that the pilot, Capt. Grime-Jones, was killed, knowing the type of machine was a B.E.2c, No. 4335, he could hardly believe that it was the pilot who had been killed. It had never before come to his knowledge that the pilot had been killed in one of these machines.—[While the passenger escaped, presumably.—Ed.]—and he, therefore, proposed to ask if that were so; but before he could take any steps he received two letters from people interested in Capt. Grime-Jones asking him to call attention to the fact that these newspaper reports, released by the Press Bureau, were wrong, and that Capt. Grime-Jones was not the pilot of this machine. For a pilot to meet with an accident of this description was, from information he had received, entirely due to inexperience and inefficiency. It was rather hard for a man who was not responsible for the accident and who was killed to be accused of being responsible. He had reason to think that Lieut. Tennant, who was a probationer without experience, and who, it was stated in the letter he had received, was the last officer whom one could have trusted at that time to fly with a passenger was actually flying with Capt. Grime-Jones on that occasion in a B.E.2c machine, and neither of them had any experience. He did not propose to criticise—it was too delicate a question—(hear, hear)—but he considered it his duty, with the information he had, to make this statement public. Capt. Grime-Jones was not piloting the machine; neither was he in any way responsible for the accident or his own death.

possibly fewer pupils, and returning to the fee of £75 per head, and trusting to the number of pupils and increased efficiency in the running of the schools, to make up in quantity the loss on the individual.

A third alternative is for the school managers to go together to the War Office as a deputation, and set forth in tabular form on paper why a £75 fee means losing money. It is possible that the authorities might consent to raise their price for pilots—seeing how everything is becoming so dear in these days.

Surely now that dead mutton has risen from 10d. per lb. to 1s. 6d. per lb., the War Office can afford to pay £100 for a live pilot who only cost £75 before the war, especially considering that under the new regulations he will be so much better trained. And even then the British price will only be half the German price. One commends these points to the kindly consideration of the D.A.O., War Office.

It is earnestly to be hoped that the schools will make the best of their opportunities. This paper has put their case fairly strongly in the past because their usefulness was recognised. At the same time, no school is free from defects, and by settling down in a smart businesslike way to keep machines in order, and to train pupils methodically, their usefulness may be greatly increased.

Instructors must learn to be on the ground at the proper hour, and pupils likewise. One might even advocate that school proprietors should themselves make a point of seeing, on a reasonable number of days per week, that their schools open at the right time, so that keen pupils are not kept waiting. Many little defects of administration might be improved.

Here we have the War Office holding out a tentatively helping hand to the schools. The action is most encouraging. One can only hope that the schools will see their opportunity and grasp it. If they go under subsequently one may put it down as their own fault.—C. G. G.

Very large orders were about to be given for engines and aeroplanes, and upon the types ordered a great deal would depend. He hoped the representative of the Air Board would urge upon that Board the inadvisability of giving large orders for types of machines which, although they were of official design, were admittedly the most inefficient that the world could produce. He knew that Lord Curzon was earnest and anxious to get on with his gigantic task, and to regain for this country the supremacy of the air, and he hoped Lord Curzon would not be led astray by officials who wished to see machines which were the offspring of their own imagination in use regardless of cost or efficiency.

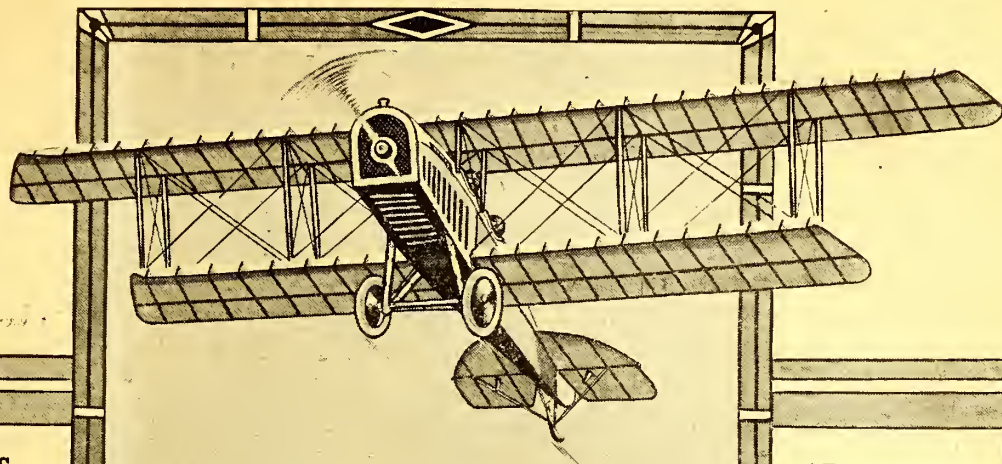
Major Baird (Rugby, U.), in reply, said the Air Board were anxious to receive suggestions from persons of experience which would help them in the fulfilment of their task. Engines and aeroplanes could not be ordered without a great deal of examination, and from the nature of the case a machine might become obsolescent before the order was completed. The Board realised to the full the need of keeping pace with the Germans in regard to the Air Service, and of doing better than them if we could, and the aeronautical officers who served on the Board as the technical advisers of the President were fully competent to give advice from their experience and practical knowledge.

If the hon. member had thought more over the accident to which he had referred probably he would not have brought the case before the House. He could not believe that it was to the advantage of the Service or in accordance with the traditions of the House that an incident of that painful nature should be brought before the House while it was the subject of official investigation. (Hear, hear.) He failed to see what useful purpose could be served; to mention the matter now could only be a source of pain to those who had already suffered enough.

[All will not agree with this view; those whose feelings are most to be considered are the relatives of the dead officer, and one assumes that their chief concern is that his memory should not bear the blame which was put upon it by the Press as soon as the first report of the accident was circulated.—Ed.]

Mr. Billing said that if the Government officials had corrected the reports which had appeared in the Press during the last three days he would not have brought forward the case. In justice to the memory of the man he thought attention should be called to the case so that a correction should be made.

Major Baird replied that if a correction were necessary it would be made. The machine referred to was of dual-control, and the man who unfortunately was killed was not the pilot.

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NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," May 30th, 1916.

WAR OFFICE, May 30th.

REGULAR FORCES.—**ESTABLISHMENTS.**—R.F.C.—Flight Comdrs.—From Balloon Officers.—Lieut. G. F. H. Faithfull, 126th Baluchistan Inf., I.A., and to be temp. Capt. while so empld., Capt. J. P. Shelley, R. Lanc. R. (May 1st).

Flying Officers.—Sec. Lieut. (temp. Lieut.) E. K. Anderson, High. L.I., T.F., temp. Sec. Lieut. L. G. Paget, Res. R. of R.H. Gds., and to be transfd. to Gen. List, Sec. Lieut. H. V. Pendavis, D.S.O., Oxf. and Bucks L.I., and to be secd., Sec. Lieut. K. P. MacNamara, S.R., from an Asst. Equipment Officer (May 12th); temp. Sec. Lieut. N. B. Fuller, K.R. Rif. C., and to be transfd. to Gen. List, Sec. Lts., S.R., G. S. Thorne, S. N. Cole, C. J. Q. Brand (May 14th). From Flying Officers (Observers).—Sec. Lt. A. D. Bell-Irving, Gordon Highrs., S.R., temp. Sec. Lt. H. C. Evans, Gen. List (May 15th).

Asst. Equipment Officers.—Sec. Lt. F. A. Crispin, S.R., Sec. Lt. C. N. Seemann, S.R., temp. Sec. Lt. O. W. Clapp, Gen. List (May 13th).

MEMORANDA.—To be temp. Sec. Lts. for duty with the R.F.C. (May 27th):—Cpl. H. D. Hamilton, from 10th N.Z. Mtd. Rif.; Pte. F. Crisp, from Inns of Court O.T.C.; Pte. D. H. Broughton, from City of Lond. Yeo., T.F.; Pte. A. B. Raymond-Barker, from Inns of Court O.T.C.

SPECIAL RESERVE OF OFFICERS.—**SUPPLEMENTARY TO REGULAR CORPS.**—R.F.C.—Sec. Lts. (on prob.) confirmed in their rank—G. S. Thorne, S. N. Cole, F. A. Crispin, C. N. Seemann, O. C. Morison. To be Sec. Lts. (on prob.):—R. Watts (April 18th); H. W. Sidley, E. E. Glorney, P. V. Tanner, N. A. Phillips, J. I. Jones, P. B. Pattison, F. Scarborough, J. R. Verel, E. P. M. Shaw, H. A. Rigby, J. V. A. Glead, H. E. R. Fitchat, C. D. Bennett, F. S. Rowe, L. J. M. Evans, A. Roberts, B. W. Pitt, G. H. Lee, A. S. Hett, W. S. Frackleton, P. A. Symmons, J. P. Stephen (May 27th).

TERRITORIAL FORCE.—R.F.A.—**HIGHLAND BRIGADE.**—Lt. A. H. Gibson is secd. for duty with Royal Aircraft Factory (April 25th).

* * *

A Supplement to the "London Gazette," May 30th, 1916, contained the following:—

WAR OFFICE, May 31st.

The King has been graciously pleased to confer the Military Cross on the undermentioned Officers, in recognition of their gallantry and devotion to duty in the field:—

Capt. JOHN BURCH TALBOT-LIGHTON, S. Gds. (attd. No. 14 Squadron, R.F.C.).

For conspicuous gallantry and skill. He took photographs at a height of 200 ft. while his observer engaged the enemy with rifle fire. On other occasions he has done fine and gallant work. Temp. Lt. FRANKLYN BELLAMY, Gen. List (attd. No. 17 Squadron, R.F.C.).

For conspicuous gallantry and skill. When unable to reconnoitre owing to clouds, he descended to 200 ft. under heavy fire. Though his instruments were broken and his petrol tank pierced, he eventually returned safely. On another occasion, when forced to descend, he repaired his engine under sniping fire, carried out his bombing, and again returned safely. Temp. Lt. JOHN GWYNNE HOWELL, R.F.A. (attd. No. 16 Squadron, 2nd Wing, R.F.C.).

For conspicuous gallantry and skill. When the pilot of his machine was killed he climbed into the pilot's seat, and, standing in front of him, managed to land the machine within our lines. Lt. FREDERICK FRANK MINCHIN, Princess Patricia's Canadian L.I. (attd. R.F.C.).

For conspicuous gallantry and skill on many occasions, notably when leading a successful bomb and machine-gun raid on a force of the enemy which he had located overnight. Next day he took part in two other raids. During these operations he flew for 13 hours over enemy country. Lt. (Temp. Capt.) ARTHUR ASHFORD BENJAMIN THOMSON, R. War. R. and R.F.C.

For conspicuous gallantry and good work during Zeppelin raids. Sec. Lt. SYDNEY EDWARD COWAN, R.F.C. (Spec. Res.).

For conspicuous gallantry and skill. He dived on to an enemy machine in the enemy's lines and drove it to the ground, where it was smashed, and then circled round and fired at the pilot and observer as they ran for shelter. Although forced to land through his engine stopping he contrived to restart it and got back under heavy fire. See. Lt. F. D. STUART-GRAY LORD DOUNE, Scottish Horse, T.F., and R.F.C.

When on patrol duty with Sec. Lt. Walker he sighted a Fokker machine 1,000 ft. below them. Sec. Lt. Lord Doune at once dived, and, when within 60 yards, Sec. Lt. Walker opened fire. Lord Doune then headed straight for the Fokker, which had to rise steeply to avoid a collision. Sec. Lts. Walker and Lord

Doune then both opened fire and shot away one wing of the Fokker, which fell behind our lines.

Sec. Lt. VALENTINE ALEXANDER STOOKES, 2nd Dns. (Spec. Res.), attd. No. 14 Squadron, R.F.C.

For conspicuous gallantry and skill. He engaged the enemy with rifle fire and shot two while his pilot was photographing at 200 ft. altitude. On other occasions he has done fine work.

Sec. Lt. DAVID MARY TIDMARSH, 4th R. Ir. R. (Spec. Res.) and R.F.C.

For conspicuous gallantry and skill when attacking hostile aircraft on several occasions, notably on one occasion when he dived at an enemy machine and drove it down wrecked to the ground.

Temp. Sec. Lt. ROBERT VERSCHOYLE WALKER, 6th Conn. Rang. and R.F.C.

For conspicuous gallantry and skill. When on patrol duty with Sec. Lt. Lord Doune he sighted a Fokker machine 1,000 ft. below them. Sec. Lt. Lord Doune at once dived, and, when within 60 yards, Sec. Lt. Walker opened fire. Lord Doune then headed straight for the Fokker, which had to rise steeply to avoid a collision. Sec. Lts. Walker and Lord Doune then both opened fire and shot away one wing of the Fokker, which fell behind our lines.

The King has been graciously pleased to approve of the award of the Distinguished Conduct Medal to the following Non-commissioned Officers for acts of gallantry and devotion to duty in the field:—

211 Flt. Sgt. (Actg. S. M) C. A. C. FIDLER, "X" Aircraft Pk., R.F.C.

For conspicuous good work in connection with the care and repair of aeroplanes.

212 Flt. Sgt. (Actg. S. M) R. J. SLADDEN, No. 17 Sqdn., R.F.C.

For consistent good work in connection with the care and repair of aeroplanes.

22 Flt. Sgt. (Actg. S. M) W. G. STAFFORD, No. 14 Sqdn., R.F.C.

For consistent good work in connection with the care and repair of aeroplanes.

* * *

From the "London Gazette" Supplement, May 31st, 1916.

A supplement to the "London Gazette," dated May 31st, 1916, contained the following:—

ADMIRALTY, May 31st.

The King has been graciously pleased to approve of the appointment of the undermentioned officer to be Companion of the Distinguished Service Order:—

Lieut.-Cdr. A. D. BORTON, R.N.V.R.

In recognition of most valuable services in command of a detachment of R.M. machine guns in difficult and dangerous parts of the line in the Gallipoli Peninsula.

[Lieut.-Commander Borton was formerly an R.F.C. officer, and was invalided out with a broken neck, caused in an aeroplane accident.—Ed.]

The King has further been graciously pleased to approve of the award of the Distinguished Service Cross to the undermentioned officers:—

Flight Sub-Lieut. HENRY KARSLAKE THOROLD, R.N.A.S.

Sub-Lieut. REGINALD HENRY PORTAL, R.N.

For conspicuous gallantry during a combat with an enemy aeroplane in the Dardanelles. At the outset Flight Sub-Lieut. Thorold, the pilot, was severely wounded in the back, and Sub-Lieut. Portal, the observer, in the thigh and arm. The pilot momentarily lost control and the machine nose-dived, but he soon regained control and the observer succeeded in firing another two magazines, whereupon the enemy aeroplane sheered off and disappeared. The pilot took his machine safely back to the aerodrome, a distance of about 25 miles.

* * *

From the "London Gazette" Supplement, June 1st, 1916.

WAR OFFICE, June 1st.

REGULAR FORCES.—**ESTABLISHMENTS.**—**ROYAL FLYING CORPS.**—Sqdn. Comdr.—**QR-MR.** and Hon. Lt. (temp. Capt.) A. Fletcher, from an Equipment Officer, and to be temp. Maj. whilst so empld. (Feb. 29th).

Flight Comdrs.—From Flying Officers, and to be temp. Capt. whilst so empld.:—Lt. F. F. Minchin, 7th Canadian Inf. Bn.; Temp. Lt. W. D. Long, A.S.C., and to be transfd. to the Gen. List (May 15th).

Flying Officers.—Sec. Lt. R. S. Carroll, S.R. (May 14th); Lt. H. H. Balfour, K. R. Rif. Corps, S.R., from 10th K. R. Rif. Corps; Sec. Lt. G. D. F. Keddie, Lond. R., T.F.; Sec. Lt. H. M. Probyn, R. War. R., T.F.; Temp. Sec. Lt. D. V. Armstrong, Gen. List (May 15th). Sec. Lt. (on prob.) V. M. C. B. de Savigny, York and Lanc. R., S.R., and to be secd. (May 16th). From Flying Officers (Observers):—Lt. F. W. H. Simpson, R.A.; temp. Sec. Lt. H. C. Hopkinson, Gen. List (May 15th).

Flying Officers (Observers).—Sec. Lt. (temp. Lt.) H. G. Thornton, North'n. R., T.F.; temp. Sec. Lt. H. Hamer, N. Lan. R.,

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and to be transf'd. to the Gen. List; Sec. Lt. D. H. de Burgh, R.A., and to be sec'd.; Sec. Lt. W. S. Caster, Hunts, Cyclist Bn., T.F.; Sec. Lt. (on prob.) P. W. Spurr, R. Berks R., Spec. Res., and to be sec'd.; temp. Sec. Lt. H. L. Lascelles, York R., and to be transf'd. to the Gen. List (April 1st). Sec. Lt. (temp. Lt.) D. C. Beck, R.A., T.F.; Sec. Lt. J. A. Williamson, R.E. Kent Yeo., T.F. (April 28th); Sec. Lt. A. G. A. Davis, Devon R., and to be sec'd. (May 14th).

Asst. Equipment Officer.—The appt. of temp. Sec. Lt. J. L. Miles, Gen. List, is antedated to Jan. 27th.

SPECIAL RESERVE OF OFFICERS.—RESERVE UNITS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—Sec. Lts. to be Lts.:—G. O. Hayne, W. E. Collison, J. E. Marriott, P. D. Robinson, H. E. van Goethem, D. A. L. Davidson, F. W. Stent (May 1st); Sec. Lt. (on prob.) C. J. Q. Brand is confirmed in his rank.

TERRITORIAL FORCE.—INFANTRY.—LONDON REGT.—Sec. Lt. G. D. F. Keddle is sec'd. for duty with the R.F.C. (May 15th). **YEOMANRY.—LEICESTER.**—Sec. Lt. G. N. Anderson is sec'd. for duty with R.F.C. (May 17th).

ROYAL ENGINEERS.—NORTHUMBRIAN DIV. ENGRS.—Sec. Lt. R. H. Hodgson to be temp. Lt. (Jan. 14th); Sec. Lt. (temp. Lt.) J. McKelvie is sec'd. for duty with R.F.C. (April 29th).

From the "London Gazette," June 2nd, 1916.

WAR OFFICE, June 2nd.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Flight Comdrs.—From Flying Officers.—Lt. F. W. H. Simpson, R.A., and to be temp. Capt. whilst so empld (May 16th); Lt. (temp. Capt.) G. V. Rice, R.A., T.F., and to retain his temp. rank whilst so empld. (May 23rd).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—Sec. Lt. (on prob.) C. T. L. Millington relinquishes his commn. (May 13th). Sec. Lts. (on prob.) confirmed in rank:—A. T. Thompson, A. N. Patterson, E. D. L. Davies, H. L. Saunders, C. R. Fry.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—Wing Adjs.—And to be temp. Capt. while so empld.—Lt. C. S. McNab, Cam'n Highrs. (April 8th); Sec. Lt. B. E. Sutton, West and Camb. Yeo., T.F., from a Flying Officer (Observer) (May 6th); Lt. R. H. Jerman, R. W. Fus., and to be sec'd., vice Capt. H. M. Meyler, Bord. R. (May 7th).

From the "London Gazette" Supplement, June 2nd, 1916.

The King has been graciously pleased to give directions for the following appointments to the Most Distinguished Order of Saint Michael and Saint George, for valuable services rendered in connection with the War:—

To be Additional Members of the Third Class, or Companions of the said Most Distinguished Order:—

Major and Bt. Lt.-Col. (temp. Lt.-Col.) E. L. Ellington, R.A. Maj. (temp. Lt.-Col.) L. E. O. Charlton, D.S.O., Lanc. Fus. and R.F.C.

PROMOTIONS FOR VALUABLE SERVICES.

His Majesty the King has been graciously pleased to approve of the undermentioned promotions for valuable services rendered in connection with the War, with effect from June 3rd, 1916, inclusive:—

TO BE BREVET LIEUTENANT-COLONELS.

Maj. (temp. Lt.-Col.) E. M. Maitland, Essex R. Maj. (temp. Lt.-Col.) W. W. Warner, R.F.C., late Ind. Army (on retired list).

TO BE BREVET MAJOR.

Capt. (temp. Lt.-Col.) R. K. Bagnall-Wild, late R.E. (on retired list).

REWARDS FOR DISTINGUISHED SERVICE.

His Majesty the King has been graciously pleased to approve of the undermentioned rewards for Distinguished Service in the Field, dated June 3rd, 1916:—

TO BE BREVET LIEUTENANT-COLONELS.

Maj. (temp. Lt.-Col.) H. R. M. Brooke-Popham, D.S.O., Oxfr. and Bucks L.I. and R.F.C. Maj. (temp. Lt.-Col.) B. D. Fisher, D.S.O., 17th Lrs. Maj. (temp. Brig.-Gen.) J. M. Salmond, D.S.O., R. Lan. R. and R.F.C.

Maj. (temp. Lt.-Col.) W. G. H. Salmond, R.A. and R.F.C.

DISTINGUISHED SERVICE ORDER.

Capt. and Bt. Maj. S. D. Massy, R.F.C., Ind. Army.

Capt. and Bt. Maj. A. J. Ross, R.E. and R.F.C.

MILITARY CROSS.

Capt. G. W. D. Allen, L'pool R., Spec. Res., and R.F.C. Sec. Lt. (temp. Capt.) P. Babington, Hamp. R., T.F., and R.F.C.

Capt. (temp. Maj.) A. C. Bolton, R. Sc. Fus. and R.F.C.

Capt. M. G. Christie, R.F.C., Spec. Res.

Lt. (temp. Capt.) J. P. C. Cooper, R.F.C., Spec. Res.

Sec. Lt. F. E. Goodrich, R.F.C., S.R.

Sec. Lt. (temp. Capt.) J. H. Herring, R.F.C., Spec. Res.

Lt. (temp. Capt.) B. C. McEwen, R.F.C., S.R.

Capt. (temp. Maj.) T. O'B. Hubbard, R.F.C., S.R.

Capt. L. Jenkins, R.G.A., T.F., and R.F.C.

Lt. (temp. Capt.) L. W. Learmount, R.F.C., Spec. Res. Capt. A. G. Moore, Spec. Res., Manch. R., attd. R.F.C. Lt. (temp. Capt.) L. A. Pattinson, R. Fus. and R.F.C. Capt. (temp. Maj.) T. V. Smith, R.F.C., Spec. Res. Capt. (temp. Lt.-Col.) C. F. De S. Murphy, R. Berks. R. and R.F.C.

Sec. Lt. W. V. Strugnell, Hamps. R. and R.F.C.

Lt. (temp. Capt.) H. A. Van Ryneveld, R.F.C.

Capt. Lord G. Wellesley, G. Gds. and R.F.C.

Sec. Lt. (temp. Capt.) W. G. B. Williams, R.F.C., Spec. Res.

DISTINGUISHED CONDUCT MEDAL.

1675 Flight Sgt. H. G. Dudley, R.F.C.

Sgt. W. L. Fordham, R.H.A. (attd. 14th Anti-Aircraft Secn.). 88053 Gunr. G. W. G. Marshall, R.H.A. (attd. 14th Anti-Aircraft Secn.).

1776 Flight-Sgt. (Actg. S.-M.) H. McKenna, R.F.C.

8358 Sgt. E. Trowbridge, R.H.A. (attd. 20th Anti-Aircraft By.).

299 Flight Sgt. (Actg. S.-M.) T. Bell, R.F.C.

1857 Sgt. S. Bull, R.F.C.

116 Flight Sgt. (Actg. S.-M.) H. C. S. Bullock, R.F.C.

7911 2nd Class Mechanic H. N. Farmer, R.F.C.

39677 Sgt. G. W. F. H. Downer, R.H.A. (attd. 14th Anti-Aircraft Section)

7500 2nd Class Air Mechanic A. J. Greatorex, R.F.C.

320 Flight Sgt. (Actg. S.-M.) H. James, R.F.C.

54 Flight Sgt. (Actg. S.-M.) J. C. Jones, R.F.C.

346 Flight Sgt. (Actg. S.-M.) M. Keegan, R.F.C.

422 Flight Sgt. (Actg. S.-M.) C. Littlejohn, R.F.C.

276 Flight Sgt. M. Weare, R.F.C.

* * *

From the "London Gazette" Supplement, June 3rd, 1916.

WAR OFFICE, June 3rd.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MIL. WING.—Appt. of Sec. Lt. W. G. Stewart, Spec. Res., as a Flying Officer is antedated to May 3rd.

MEMORANDA.—Temp. Capt. C. D. M. Campbell, R.F.C., Spec. Res., to be temp. Maj. (without the pay or allowances of that rank) whilst specially empld. (May 18th).

Pte. R. B. Mellor, from H.A.C., T.F., to be temp. Sec. Lt. for duty with the R.F.C. (May 27th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—MILITARY WING.—Sec. Lts. (on prob.) confirmed in their rank:—G. H. Armstrong, R. M. W. Browne, A. J. Hamar, D. Cloete, R. Buck, H. B. Prior, G. F. Golding; Sec. Lt. (on prob.) S. Pope is removed from the Army, the King having no further occasion for his services (June 4th).

* * *

From the "London Gazette" Supplement, June 5th, 1916.

ESTABLISHMENTS.—R.F.C.—Flying Officer (Observer).—Lieut. M. D. G. Scott, N. Lan. R., Spec. Res., and to be sec'd. (May 21st).

MEMORANDUM.—To be temp. Sec. Lieut.—Pte. E. A. Gulson, from Inns of Court O.T.C., for duty with the R.F.C.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—The following Sec. Lieuts. (on prob.) are confirmed in their rank.—R. D. Clinch, C. Jarrott, J. E. Appleyard To be Sec. Lieuts. (on prob.): R. N. Rowell (April 19th); E. G. A. Lefrere (April 24th); J. H. Robertson (April 25th); Sec. Lieut. (on prob.) W. F. Sullivan relinquishes his commn. (May 13th).

THE COURT CIRCULAR.

BUCKINGHAM PALACE, June 1st.

The following officer had the honour of being received by His Majesty, when the King invested him with the Insignia of Companion of the Order into which he has been admitted:—

The Distinguished Service Order.—Flight Commander CHARLES EDMONDS, R.N.

NAVAL.

The following appointments have been made in the Royal Naval Air Service:—

JUNE 1st.—Chief Petty Officer.—C. J. Turner, promoted to Temp. Sub-Lieut. (R.N.V.R.), seny. of May 28th, and appointed to "President II," addl., for R.N.A.S.

JUNE 2nd.—Temp. Lieut. (R.N.V.R.).—A. C. Wade, to "President," addl., for R.N.A.S. (May 31st).

Temp. Sub-Lieut. (R.N.R.).—F. D. Casey, commission as Temp. Sub-Lieut. (R.N.R.) terminated (May 27th), and entered as Proby. Flight Sub-Lieut. (temp.), seny. of May 28th, and appointed to "President," for R.N.A.S.

Mr. T. M. Ritchie, granted temp. commission as Lieut. (R.N.V.R.), seny. of May 31st, and appointed to "President," for R.N.A.S.

JUNE 5th.—Mr. J. L. Pritchard, granted temp. commission as Sub-Lieut. (R.N.V.R.), seny. of June 2nd, and apptd. to "President," addl., for R.N.A.S.

Temp. commissions as Sub-Lieut. (R.N.V.R.), seny. of June 2nd, have been granted to J. H. Green (Lance-Corpl., 4th Seaforth Highlanders) and N. L. Silvester, and both apptd. to "President," addl., for R.N.A.S. (June 4th and 5th respectively).

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THE CASUALTY LIST.

Reported June 2nd.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED, APRIL 29th.—Terraneau, Flight Sub-Lieut. Cecil R., R.N.

It is reported that on May 31st an aviator was returning from a flight somewhere out to sea when a mist sprang up and the machine ran into the top of the cliffs and fell to the bottom. The pilot, who fell into the water, was rescued and removed to hospital.

The officers of one of the Naval Air Stations near London recently presented a silver tray and watch to Wing Commander E. T. R. Chambers, R.N., on his giving up command of the station to take up another appointment.

Commander Chambers has done much work of very high value in the training of pilots, and the presentation was a slight token of the high personal esteem in which he has always been held by those who have served with him, either as instructors or as pupils under instruction. The best wishes of all who have served with him accompany him in his new work.

TERRANEAU.—Killed in action, on April 29th, previously reported missing, Flight Sub-Lieut. Cecil Roy Terraneau, R.N. (Jack), the dearly loved third son of Mr. and Mrs. Ernest Terraneau, of The Whare, Twickenham, Middlesex, grandson of the late Major G. J. Stapleton, 10th Madras Native Infantry, and great-grandson of the late Lieut.-General William Cotton, Indian Army, aged 21 years.

RADMORE—CHARRINGTON.—On June 3rd, at Holy Trinity, Roehampton, by the Rev. J. C. L. Johnstone, assisted by the Rev. Canon Browne, Vicar of the Parish, Flight Sub-Lieut. R.N.A.S. Lewis Radmore, only son of the late Lewis Radmore, of Thorverton, Devon, to Gwendolen Agnes, youngest daughter of J. Douglas Charrington, of Ashburton House, Roehampton.

The marriage arranged between Flight Commander James

Ogilvy Dalgleish, Royal Navy, and Miss Guinevere Kennedy will take place very quietly at St. Mary's, Ulverston, on Wednesday, June 28th, at 11 o'clock. There will be no invitations or reception, but friends will be very welcome at the church

MILITARY.

G.H.Q. communiqué, May 30th, 9.44 p.m., says:—

Yesterday enemy's aircraft were more active than usual. One of our machines was shot down as the result of a combat in the air, falling in our own lines. A hostile machine was forced down out of control within its own lines.

On May 30th the Secretary of the War Office issued the following in a statement concerning the successful action against the Sultan of Darfur on May 22nd:—

On the morning following the battle our aeroplanes threw bombs on a large body of men fleeing from Fasher with Ali Dinar.

G.H.Q. communiqué, May 31st, 11.57 p.m., says:—

Yesterday the weather was unfavourable for flying, but in spite of this some good work was done by our aeroplanes.

G.H.Q. communiqué, June 1st, 10.15 p.m., says:—

Yesterday our aeroplanes, while on reconnaissance, had a long running fight with three hostile machines. One enemy machine was driven down and one of our machines is missing.

During the night hostile aircraft dropped eight bombs on Poperinghe, doing no damage.

G.H.Q. communiqué, June 2nd, 10.25 p.m., says:—

The clear weather enabled much successful aerial work to be done yesterday. There was a certain amount of fighting in the air, as a result of which one of the enemy's machines was brought down and subsequently set on fire by our artillery, while another was driven to the ground, damaged, just behind the enemy's lines.

One of our balloons was carried away by a sudden gust of wind and driven over the enemy's lines. Both the occupants



WHERE PROPELLERS ARE MADE.—The works of Lang Propeller, Ltd., at Weybridge. In the left top corner is seen the Glueing Shop, where the shaped laminations are stuck together. The various other shops carry the operations on to the Polishing Shop, seen in the right bottom corner, where the finishing operation is done.



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reached the ground safely inside our lines by means of parachutes.

* * *

G.H.Q. communiqué, June 3rd, 10.19 p.m., says:—

Yesterday our aeroplanes, favoured by fine weather, accomplished much successful work.

* * *

G.H.Q. communiqué, June 4th, 10.25 p.m., says:—

Yesterday a squadron of our aeroplanes bombed some points of military importance. Considerable damage is believed to have been done. One of our machines was brought down in the enemy's lines by gun-fire. The remainder returned safely. Hostile aircraft inactive.

* * *

The following announcement was made by the Secretary of the War Office on June 2nd:—

The General Officer Commanding-in-Chief in Egypt reports that the Australian and New Zealand mounted troops carried out another successful enterprise on the morning of May 31st, delivering an attack on an enemy post at Bir Salmana (about 20 miles E.N.E. of Katia).

At 8 a.m. our aeroplanes took over the pursuit from the mounted troops and bombed the flying enemy, inflicting further casualties.

* * *

THE CASUALTY LIST.

Reported June 2nd.

WOUNDED.—Lieut. J. C. Slessor, R.F.C.

MISSING.—1840, Cpl. D. McMaster (Middlesbrough).

Reported June 5th.

WOUNDED.—Capt. C. Mackay, Leinster Regt. and R.F.C.

KILLED.—Capt. E. W. Barrett, R.F.C.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Capt. C. Bruno, R.F.C.

Reported June 6th.

PREVIOUSLY OFFICIALLY REPORTED MISSING, NOW UNOFFICIALLY REPORTED KILLED.—Basden, Lieut. M. D., London Regt. and Royal Flying Corps.

WOUNDED.—R.F.C.—Batchelor, 5598 2nd Cl. Air Mech. G. B. (Westerham).

* * *

Capt. Ernest Barrett, R.F.C., killed in action, was the second son of Mr. James Barrett, of Seaview, Farnham Road, Bangor, County Down. He was educated at Campbell College, Belfast, Armagh Royal School, and Queen's University, Belfast, and subsequently emigrated to Australia. Later he proceeded to Singapore. He returned home last year to join the forces, and his promotion to the rank of captain was announced last week.

* * *

Lieut. M. D. Basden, London Regt. and R.F.C., was gazetted to the London Regt. in Jan., 1915, and was appointed to the R.F.C. in November of that year. He had recently been promoted.

* * *

An inquest was held on May 31st on the body of Capt. George Alfred Grime-Jones, aged 21, who was killed in the flying accident in Kent in which Lieut. Tennant was seriously injured. The jury returned a verdict of "Death by misadventure."

It is understood that Mr. Tennant was piloting the machine at the time of the accident. Photographs in the daily Press disclose the fact that the accident occurred on a B.E. biplane.

Captain Grime-Jones—who was engaged to be married—was with his regiment, the Buffs, in the Battle of Loos. He was wounded by shell in the side, but after about a fortnight at the Base Hospital he was able to return to the trenches. He had joined the East Kents in September, 1914, and was gazetted captain in September, 1915. He transferred to the Royal Flying Corps about two months ago. Capt. Jones was the son of Capt. W. C. Grime-Jones, a magistrate, and formerly of the C.M.R., Cape Colony, grandson of the late Capt. R. W. Jones, Park Place, Sevenoaks, and great-grandson of Capt. Richard Jones, R.N., of Homewood, Tenterden, Kent.

To Capt. Grime-Jones' relations and to his fiancée one ventures to tender the sincere sympathy of all aviators, in view of the erroneous story first circulated in the Press.

* * *

LE SAUVAGE.—On May 30th, accidentally killed whilst flying, Sec. Lieut. Ernest Davies Le Sauvage, the only son of Mr. and Mrs. Ernest P. Le Sauvage, of Beaumont, Jersey, Channel Islands, aged 19 years 5 months.

Lieut. Ernest Le Sauvage, Dorset Regiment, and Air Mechanic William John Woodland, aged 28, were killed while flying at Upavon early on the morning of May 30th. Lieut. Le Sauvage, whose home is in Jersey, was attached to the school as an assistant instructor. He was wounded at the front in April, 1915. A verdict of accidental death was returned on May 31st.

* * *

On May 31st a fatal accident occurred near Upavon, in which Flight Sergt. Enos George West, 22, and Air Mechanic William Burlinson, 28, were killed.

The customary verdict was found at the inquest on the same day.

PRICKETT.—On June 2nd, killed in a flying accident, Capt. Lancelot Prickett, R.G.A. and R.F.C., only son of Major and Mrs. Prickett, Worfield, Worthing, aged 28.

* * *

GLOVER.—Killed in action, March 13th, Sec. Lieut. Brian E. Glover, R.F.C., second son of Mr. and Mrs. Glover, South-over, Lewes, aged 21 years.

* * *

The marriage arranged between George William Swanson, lieutenant, 4th Hants Regiment and R.F.C., only son of the late William Swanson and Mrs. Swanson, of Fairfield, Kilmainham, Dublin, and Brenda Charlotte, younger daughter of the late James A. Hill, of Antwicks Manor, Wantage, and Mrs. Arthur Pratt, Aston Villa, Francis Road, Bournemouth, took place quietly at St. Clement's Church, Bournemouth, on June 3rd.

* * *

MOFFATT—HERBERT.—On June 1st, at Dock Street Church, Sunderland, by the Rev. Tunnicliffe Shaw, assisted by the Rev. M. Harvey, Capt. Alexander McRitchie Moffatt, 7th Argyll and Sutherland Highlanders, and Royal Flying Corps, son of Alexander Moffatt, Advocate, Sheriff-Substitute of Stirling-shire, to Alice May, younger daughter of R. W. Herbert, Ashville, Sunderland.

AIR BOARD REPORTS.

The Air Board has decided to publish at intervals a résumé of the principal incidents described in the reports received from the Royal Naval Air Service and the Royal Flying Corps in the various theatres of war. The incidents selected are such as appear to be of general interest to the public.

It must be borne in mind that a great deal of extremely valuable and dangerous work is being carried on which does not lend itself to publication. The following is the first of these communications:—

ROYAL NAVAL AIR SERVICE (FLANDERS).

MAY 4TH.

Nineteen machines carried out a raid on Mariakerke Aerodrome and 50 65-lb. bombs were dropped. Heavy anti-aircraft fire with incendiary shells was encountered; two of our machines were lost. The rest returned in safety.

MAY 20TH.

Flight Sub-Lieut. A., in a Nieuport scout, when four miles off Blankenburghe, observed a German seaplane. Diving down to 4,500 ft. the pilot succeeded in getting above and behind the enemy, and fired 25 rounds at close range. The enemy machine was observed to swerve and dive into the water. It sank, reappeared, and finally sank.

MAY 21ST.

(a) During the early hours an Allied raid was carried out on the enemy's aerodromes and places of military importance. Sixteen R.N.A.S. machines dropped 38 65-lb. bombs and 17 16-lb. bombs on Mariakerke Aerodrome. One seaplane dropped one 100-lb. and two 65-lb. bombs on the Solvay Works, Zeebrugge. All these machines returned safely with one exception.

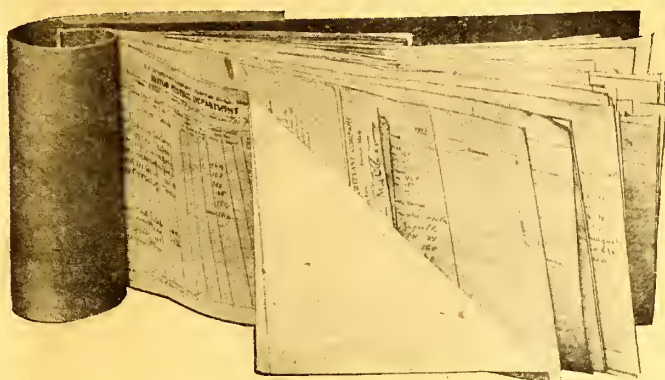
(b) An attack was made upon Dunkirk by hostile aircraft. Several British machines went up with the object of cutting off the enemy on their return journey, in the vicinity of Nieuport. Flight Sub-Lieut. D., in a Nieuport scout, attacked three machines at a range of 400 yards. He opened fire on one machine and observing another about 900 ft. above him making seawards, gave chase and fired the rest of the tray. He then reloaded and climbing to 10,000 ft. encountered a large two-seater, which opened fire at long range. Flight Sub-Lieut. D. opened fire and observed tracer bullets entering the machine, which started to smoke violently and nose-dived towards the sea. Another officer who was in the air at the same time states that he observed in the same locality what appeared to be a machine on fire, enveloped in a volume of black smoke. A fourth hostile machine was encountered and fired upon until Sub-Lieut. D.'s ammunition had been expended.

(c) Flight Sub-Lieut. E., in a Nieuport scout, when six miles out to sea, over Zuydcoote, observed five hostile machines together and another one a little way behind. Climbing rapidly the pilot attacked the last one at close range of 100 yards. The hostile machine suddenly dived steeply, but the pilot was unable to ascertain the result as he was attacked from behind by three scouts, probably Fokker biplanes, at a range of 100 ft. Flight Sub-Lieut. A. turned round to meet them, and reloading continued to fire. These machines, however, made good their retreat over the lines.

(d) Flight-Commander A., in a Nieuport scout, followed the raiders out to sea, opening fire when off Mariakerke. He closed with three machines, one of which was seen to topple over suddenly and nose-dive out of sight. Reloading, the pilot attacked another machine, which, after a few rounds, was observed to dive steeply. The third machine did not attempt to engage, but flew back over the lines. It is probable that one, and possibly two, of these machines were destroyed.

MAY 22ND.

Fight Sub-Lieut. G., in a Nieuport scout, observed five hostile machines in close formation and one farther in the rear, which he



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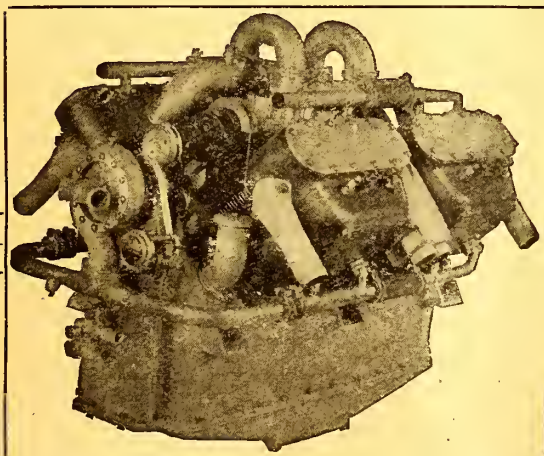
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attacked at very close range and from underneath, the tracer bullets entering the fuselage. The observer of the enemy machine fired a few rounds, and then broke off, as though killed or wounded, our machine still being an easy target. The other hostile machines drew away.

ROYAL FLYING CORPS (FRANCE).

MAY 4TH.

Lieut. D., pilot, and Sec. Lieut. D., observer, attacked two hostile aeroplanes, a Roland and an Aviatik, over Fromelles. The hostile machines came from the north-east at 8,500 ft. and 8,000 ft. respectively. Lieut. D. steered straight towards them. The Roland opened fire at 150 yards, and Sec. Lieut. D. at 70 yards. The Roland turned, the observer standing up to fire. Lieut. D. followed, and the Aviatik came up behind him and opened fire. Both pilot and observer of our machine were now firing, being between the two hostile machines. They got within a few yards of the Roland, which ceased fire and dived steeply, but apparently under control, towards Wavrin. The observer was apparently hit, as he disappeared from view and firing ceased. Lieut. D. then turned towards the Aviatik, which, however, went down in the direction of Wavrin. Lieut. D.'s machine was badly damaged, but pilot and observer were unhurt.

Sec. Lieut. C., on a de Havilland, sighted a hostile machine flying south at about 1,500 ft. between Hem and Clery. He dived down and overtook the German, who also dived close to the ground, firing about 12 rounds at a range of 50 yards. The German machine tried to land, but hit a wire fence and broke up. Sec. Lieut. C. climbed to 200 ft., when he again dived, firing the rest of his drum at the pilot and observer who were running across the field. One of them fell and the other took refuge in a shed. Meanwhile Sec. Lieut. C.'s thumb-switch had jammed and he was forced to land, but the bump on landing loosened the spring, and he got off again, crossing the lines at about 500 ft. under heavy fire. Capt. T. was killed by anti-aircraft fire. His observer, Sec. Lieut. H., climbed back into the pilot's seat and found the rudder jammed. He, however, managed to land the machine in our lines and escaped unhurt.

MAY 16TH.

COMBATS.—Twenty-seven combats in the air took place. Lieut. D. and Corpl. S. on an F.E. attacked an Albatros when approaching Lille. Half a drum of ammunition was fired, and the hostile machine spiralled rapidly down, firing occasionally. Later, the same machine was observed climbing again over Lille, and following the F.E. at about 500 yards. Lieut. D. wheeled sharply and opened fire at close range. The Albatros sheered away to the right, followed by the F.E. still firing at close range. The hostile machine then went down rapidly, and was seen to strike the ground at a cross-roads south of Lille. Smoke rose from the spot and only one wing was visible. The F.E. was then attacked by a Fokker monoplane, which was driven off.

Sec. Lieut. B., on a Bristol scout, when flying at 12,000 ft., saw an Albatros at 5,000 ft. over Givenchy. The hostile machine turned towards Beaumont, followed by Lieut. B., who opened fire when about 2,000 ft. above, and continued until within a few yards. The hostile machine turned and got into a nose-dive, and when about 2,000 ft. from the ground was seen to turn upside down.

MAY 19TH.

COMBATS.—Lieut. P., on an F.E., observer, Air Mechanic H., on patrol north-east of Ypres, sighted three hostile machines. He engaged one of them, which turned and met him face to face, being slightly below him. Fire was opened, and the enemy machine side-slipped, and then dived vertically. The F.E. saw no more of the hostile machine.

Sergt. N., on a de Havilland, sighted a hostile machine over Bixchoete flying north. He flew towards Langemark, and cut off the hostile machine from its own lines. It was then below him, and did not observe him. He dived and fired a drum, but while reloading lost sight of the machine. One hostile machine was seen to fall in the enemy's lines. This was probably the first of the above machines.

Lieut. R., on an F.E., observer, Lieut. M., encountered a Fokker. Fire was opened at 50 yards, and the enemy machine side-slipped, turned on its back, and crashed to earth. Its fall was observed by a B.E.

MAY 20TH.

An Aviatik was engaged by three of our machines over Adinver Wood—viz., two F.E.'s, pilots, Capt. A. and 1/A.M. C., observers, Sec. Lieut. C. and Corpl. H., and a B.E.2c., pilot, Lieut. F., observer, Sec. Lieut. C. The B.E. attacked first. Air Mechanic C. then dived from 9,000 ft., and attacked the Aviatik at 5,000 ft. Finally, Capt. A. closed to within 20 yards and fired two drums at the Aviatik, which went down in a nose-dive and crashed into the trees.

An Albatros was attacked by three of our machines over Poziere, a Martinsyde pilot, Capt. S., and two de Havillands, pilots, Lieut. W. and Sec. Lieut. T. Lieut. W. attacked first, opening fire at 50 yards, and turned aside owing to his gun jamming. Capt. S. on the Martinsyde then attacked at 30 yards range, apparently without effect. Sec. Lieut. T. then dived on to the hostile machine from above and fired a drum at 40 yards from behind it. The

hostile machine burst into flames and fell between Poziere and Contalmaison.

MAY 21ST.

Sec. Lieut. T., on a Martinsyde, flying at 12,500 ft., saw an Albatros over Fromelles at about 9,000 ft. He dived at it, reserving his fire till within close range. Both machines were diving at high speed with engines on. Sec. Lieut. T., having expended one drum, changed, and continued the attack. The enemy endeavoured to manoeuvre out of fire, turning in all directions, but Sec. Lieut. T. manoeuvred his Martinsyde and managed to keep the enemy under fire at intervals. At about 4,000 ft. over the south-west corner of Lille the machines were so close that they nearly collided; but the enemy after descending in a vertical dive recovered himself and escaped.

[It is worthy of note that the erstwhile despised "trade" machines come in for most of the mention. One cannot, however, refrain from drawing attention to the fact that all Naval successes are on French machines, whereas, if the Air Department or the Admiralty had acted with common sense, the machines would have been British.—Ed.]

FRANCE.

The communiqué of June 1st says:—

Last night one of our air squadrons dropped about 20 bombs on the stations of Thionville and Audun-le-Roman and 50 bombs on the supply centre at Azannes.

A group of German aeroplanes this afternoon dropped several bombs on the open town of Bar-le-Duc. Eighteen civilians were killed, including two women and four children, and 25 were injured, including six women and eleven children.

An Aviatik, attacked by one of our machines, was forced to land in our lines to the south of Bernécourt, in the region of Toul. Both aviators were made prisoners.

The communiqué of June 2nd says:—

On Thursday our squadrons gave battle to a number of aeroplanes which had bombarded Bar-le-Duc and scattered a second squadron.

A German aeroplane was brought down near Etain [about twelve miles north-east of Verdun]. In the course of the pursuit a Fokker, attacked by two of our machines, was brought down near Bouconville [25 miles north-east of Bar-le-Duc].

The communiqué of June 4th says:—

About noon to-day a group of German aeroplanes dropped several bombs on Toul. Six persons were killed and ten were injured. The material damage was unimportant. No military establishment was hit.

It is reported from Paris that M. Lacaze, brother of Admiral Lacaze, Minister of Marine, was killed on May 4th in an aeroplane accident at Le Bourget. M. Lacaze, who was his brother's chef de cabinet, had expressed a wish to make a trip in an aeroplane. Capt. Cotteret, senior officer of the aerodrome, offered to take him up in a biplane. The machine had reached a height of 600 feet when an explosion was heard. The pilot and M. Lacaze were seen to fall out before the machine reached the ground, and both were killed instantly. The aeroplane caught fire, and was totally destroyed.

The military critic of the "Berliner Tageblatt," in an article explaining the difficulties with which the Germans have to contend before Verdun, makes the significant admission that the transport of new artillery and munitions is greatly interfered with because all the railways and roads are being constantly watched and bombarded by French aviators.

GERMANY.

The communiqué of May 30th says:—

Last night our aviators attacked with good results an enemy destroyer squadron before Ostend.

One English biplane crashed to earth after an aerial battle near St. Eloi, and was destroyed by our artillery fire.

The communiqué of June 1st says:—

West of Cambrai a British biplane was shot down in an air fight. The occupants—officers—were wounded and captured.

The communiqué of June 2nd says:—

To the south-west of Lille an English aeroplane with its occupants fell into our hands uninjured.

A French battle single-seater was brought down in aerial battle over the Marre Ridge (north-west of Verdun). One biplane was brought down over Vaux and one to the west of Mörchingen (Morhange, in Lorraine), both within our lines.

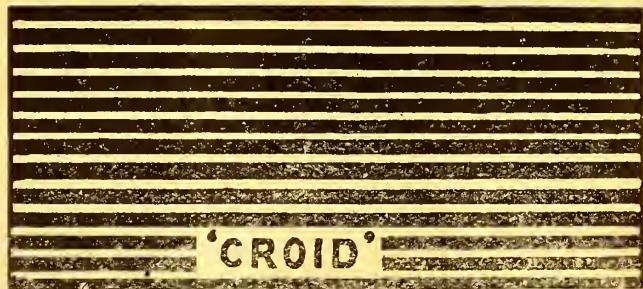
The English biplane reported yesterday as having been brought down to the west of Cambrai is the fourth enemy machine put out of action by Lieut. Mulzer.

The communiqué of June 3rd says:—

Our field artillery shot down a Farman biplane over Vaux. The French biplane mentioned in yesterday's report as being



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shot down west of Mörchingen (Morhange) is the fourth victim of Lieut. Hohendorf.

The communiqué of June 4th says:—

In Belgium several civilians were killed by bombs dropped by enemy aviators. There was no military damage.

Near Hollebeke (south of Ypres) a British aeroplane was shot down by our anti-aircraft guns.

The communiqué of June 5th says:—

In air battles near the Marre Ridge, near Cumières, and at Fort Souville, a French aeroplane was brought down in each case.

The encounters of our aviators during May were most successful. The enemy lost in air fights 36 aeroplanes, shot down from the ground nine, and from involuntary landings behind our lines two—total 47. Our own losses were in air battles 11, machines not returned five—total 16.

[This should be compared with the figures elsewhere compiled from daily communiqués.—Ed.]

A semi-official telegram from Berlin, dated June 4th, relating to the North Sea battle, says:—

In spite of the unfavourable atmosphere naval airships and aviators materially contributed to the success of our naval forces by reconnoitring and reporting.

According to a neutral correspondent in Berlin there are plenty of Zeppelins and Parsevals being turned out. Numbers of them fly over Berlin each fine day. They are so numerous that the public no longer take any notice of them. It is said that since the beginning of the war 47 Zeppelins have been lost—chiefly by accident. It is also stated that the Zeppelins cost £125,000 each.

RUSSIA.

The communiqué of May 30th says:—

Enemy airmen dropped some bombs on the railway station of Vileika (east of Vilna) and the small town of Voyston, north-west of it.

The communiqué of May 31st says:—

On the whole front aerial reconnaissances were carried out by the enemy, with great persistence. One of our aeroplanes engaged an enemy Albatros which was flying over the enemy's lines. Our machine bombarded the Albatros with machine-gun fire, and the enemy machine fell enveloped in smoke north-west of the town of Baranovitchi.

The communiqué of June 1st says:—

Two of our aerial squadrons carried out raids on positions at the rear of the enemy's lines. One of these squadrons, comprising six machines, bombarded the region near the town of Soly, north-west of Smorgon, while another, composed of fourteen machines, threw bombs on the railway station at Manevitch, on the Sarny-Kovel railway. In the first case 48 bombs were dropped, and in the other 66, causing outbreaks of fire. Notwithstanding a very hot fire from the enemy's artillery to which they were exposed, all the aviators returned uninjured to their base with their machines.

The communiqué of June 2nd says:—

An enemy aeroplane dropped six bombs on the station of Budslave, north-east of Vileika.

The communiqué of June 4th says:—

About four o'clock yesterday afternoon, near the town of Komay, one of our aeroplanes was attacked by a German destroyer machine of the Fokker type. Our aviators received the enemy with machine-gun fire and forced him to land.

On June 2nd an enemy aviator dropped four bombs on the station of Molodetchno.

AUSTRIA.

The communiqué of June 1st says:—

Early to-day several of our seaplanes dropped numerous bombs on railway stations and military works at San Giorgio di Nogaro. Four hits were observed at the station.

ITALY.

The communiqué of June 1st says:—

On Tuesday and Wednesday squadrons of Caproni aeroplanes raided the Assa valley and dropped bombs on enemy camps and depots with visibly good effect. Our machines returned safely.

The communiqué of June 3rd says:—

Enemy aircraft dropped bombs on Ala, Verona, Vicenza, and Schio. The damage was very slight and six persons were injured in Verona.

Our squadrons of Caproni and Farman machines dropped some hundred bombs on the enemy parks and encampments at the bottom of the Astico valley with clearly excellent results, and returned in safety.

It is reported that on May 30th an enemy seaplane was brought down in the Lower Adriatic.

M5—so far a very white vessel—is under the command of Capt. Mojares, a very old hand as dirigible pilots go. Second in command is Capt. Bosio, both being ex-R.E. officers. The airship carries three other navigating officers. Italian dirigibles are carrying out, fairly regularly, useful offensive trips; e.g., the bombing of P. Salvori, with its legends of the Barbarossa epoch on 25th ult.

The enemy has, it seems, a particularly rankling grudge against Portogruaro, bombs of all sorts being rained on to the place—tear, asphyxiating, incendiary, and explosive ones were dropped there on the last visit.

I have confirmed the report that the tester Victor Louvet, with passenger, took up a bi-motored Caudron to 6,240 metres at Turin on May 17th. This is claimed to have bettered the world's records, but the whole question of records will have to be inquired into whenever there is time, or else dropped. The advent of these Caudrons has altered everything. In France great things have recently been accomplished by Poirée and Poulet. The latter, with two passengers, is said to have reached 5,590 metres, beating his own record next day by taking three to 5,860 metres.

An accident is reported from Coltano (Pisa). Count Dentice, of the princely house of Frasso, and a pupil, fell from about 600 feet and were killed. The machine, said to be a 1912 Farman (model, I presume), seems to have gone wrong in the air. Elevator jammed possibly.—T. S. H.

SWITZERLAND.

The mystery surrounding the whereabouts of the aviator Gilbert, who was known to have escaped from his Swiss prison, was dispelled to-day by a telegram announcing his arrival on French soil on June 1st. The story is told thus in the "Times":—

After his escape from Zurich Barracks on May 24th Gilbert lay low for six days while his friends devised means for getting him across the frontier. A hamlet near the Saleve Mountain, Haute Savoie, on the French border, was discovered which answered the purpose, being only frequented by peasants who cross and recross from one country to the other. Gilbert's friends awaited the fugitive on the French side in a wayside tavern, the only persons in view being the Swiss and French frontier guards. Presently an aged peasant appeared painfully wending his way down the path leading to France. As he approached the frontier a Swiss gendarme challenged him, when suddenly the old peasant threw aside the stick on which he was leaning, took to his heels, and was on French soil in a moment. A French Chasseur Alpin hurried to intercept the fugitive, when Gilbert's friends called to him, "It is Gilbert."

The fugitive was taken by motor-car to Annemasse, from where he took train to Lyons. He is shortly expected in Paris, where he will report to the military authorities.

DENMARK.

An advice from Copenhagen, dated June 1st, says:—

It is reported from Soenderho, in the island of Fanoë, that Zeppelin L24 passed there at 11.30 this morning, going south-west. She was apparently badly damaged.

According to the "Ribe Stiftstidende," the L24 was evidently in distress, and completely at the mercy of the wind. The steering gear was failing, and volumes of smoke were issuing from the motor. The envelope at times was sloping at an angle of 45 degrees.

When rounding the southernmost point of Fanoë the airship, over which the crew plainly had no control, drifted over some Danish villages, and finally passed over the village of Horn into German territory.

GREECE.

It is reported from Salonika that on June 3rd French aircraft bombed enemy camps in the region of Lake Doiran.

It is reported from Amsterdam that on May 31st a Zeppelin collided with trees at the mouth of the Vardar.

TURKEY.

The communiqué of May 31st says:—

On May 29th some hostile aeroplanes dropped 30 bombs on some quarters of the town of Smyrna, killing and wounding several persons and damaging some houses.

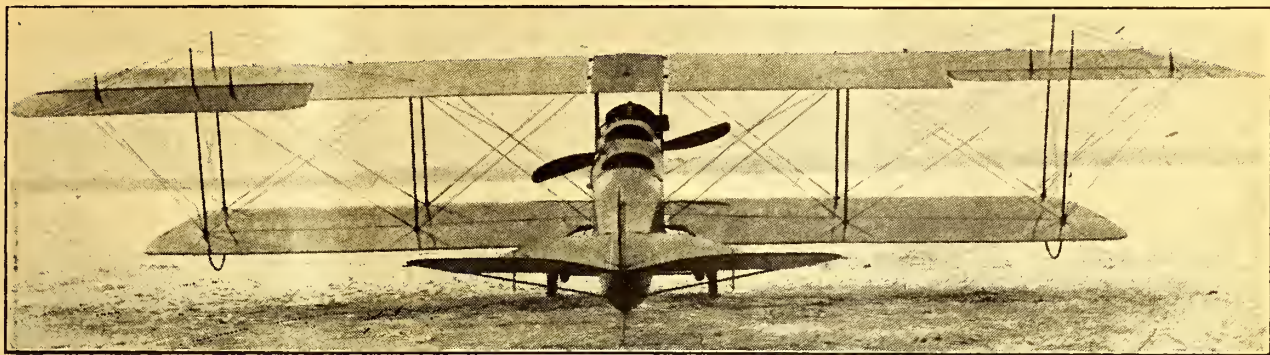
On May 27th a hostile torpedo-boat and hostile aeroplanes attacked El Arish. Some bombs were dropped, wounding seven persons. Two of our aeroplanes attacked the warship and the enemy aeroplanes off El Arish. Our aeroplanes effectively dropped bombs and made good use of their machine-guns.

A Turkish official report of June 1st says that in the course of a flight over Imbros a Turkish aeroplane threw bombs on a torpedo-boat, two of which hit.

FEDERATED MALAY STATES.

In addition to over £15,000 previously subscribed, £10,500 has been collected in the Straits Settlements and the Federated Malay States for the purchase of six more aeroplanes, which will be numbered "Malaya 11" to "Malaya 16," for the use of the Royal Flying Corps.

Mr. C. Alma Baker, of Kinta, who is the organiser of the fund, and has himself already given one aeroplane, is the donor of a second aeroplane.



Rear View of the Steel-built Biplane produced by the Polson Ironworks of Toronto, Canada.

AIRCRAFT IN THE NORTH SEA FIGHT.

A high naval officer in an explanation of the North Sea fight to a representative of the Associated Press of America said:—

The Zeppelins did not play the part which was attributed to them. Only one appeared and remained in action a very brief time, retiring under heavy fire, evidently badly damaged. The weather conditions were such that it is doubtful whether any aircraft would have been of much service.

* * *

The skipper of the steam trawler *Henrietta Jacoba*, which arrived at Ymuiden on June 4th, said:—

"Between 5 and 6 p.m. we saw two Zeppelins flying at an astonishing speed. I have seen many Zeppelins at sea during the war, but none travelling at that rate. It seems to me they took news of the rapid approach of the British Grand Fleet, as shortly after 6 p.m. the gunfire had lessened, but increased in intensity at about 7, when, I presume, the British reinforcements came up."

* * *

The "Scotsman," which is usually exceedingly well informed, says:—

Over the fighting ships Zeppelin scouts of the enemy moved continually on the outlook for the main British forces, which, doubtless, the enemy regarded as certain to appear. It may have been on the guidance of his aerial scouts that the enemy apparently concluded that the Battle-Cruiser Squadron was at that time the only enemy in sight, and was not merely screening the British Battle Fleet. The enemy, heavily gunned and armoured, now closed in as much as possible, and the whole might of his battle fleet was turned on our Battle-Cruiser Squadron during an action which lasted fully two hours.

The battle-cruisers came to grips with the large forces opposing them about five o'clock on the afternoon of Wednesday. Thereafter the contest between the outnumbered cruiser squadron and the enemy raged till there came from one of the aerial scouts a message which caused the German fleet to change its course and attempt to seek shelter. The British Battle Fleet had been discovered approaching the scene of the action at full speed.

The "Queen Mary" went down in the thick of action. There is a story amongst the men who have returned which shows that she fought at close range a German battleship, and whilst her great guns were busy with a more powerful and better protected enemy one of the Kaiser's super-Zeppelins was hovering over, showering bombs in an attempt to find a vital spot on the beauty ship of our Battle-Cruiser Squadron. Busy as she was with her heavy guns, the "Queen Mary" and her gallant crew kept the anti-aircraft guns going. The story is that the Zeppelin was shot down in a blazing mass, and fell close to the ship, exploded, and was destroyed.

Lord Beresford, in an interview on Friday with a representative of the Press Association, said, with regard to the North Sea battle:—

"The British 'looks-out' are cruisers; we have no suitable airships. The Germans have a great advantage by using Zeppelins as 'looks-out.' Every minute of time in the report of a 'look-out' in a sea fight is a priceless jewel. The Germans can tell the allocation of our Fleet, while we cannot be certain of the allocation of their fleets unless our cruisers are in the radius of action. We must send heavy cruisers as outside scouts, on account of small cruisers being driven in without getting information. A large cruiser can fight and get the information. The Germans could tell to a second when it was time to run before the Grand Fleet could properly engage."

"The Germans, besides having the information brought them by their Zeppelins, were aided also by thick weather in their retreat, which prevented the British from getting their sights on, and darkness set in shortly after the British Fleet arrived."

"As I have said, the Germans had a tremendous advantage in Zeppelins for 'looks-out.' We have no airships suitable for our Fleet, and, to get accurate information, we must stand to lose some of our cruisers."

* * *

Air Mechanic Wilson, R.N.A.S., was saved from the "Queen Mary" when she was sunk. When the "Queen Mary" went down Wilson was picked up by the "Tipperary," which sank soon after he got on board. He was eventually picked up by our own boats and brought to England suffering from a wound on the hip.

* * *

A "Daily Express" report from Geneva, dated June 5th, says:—

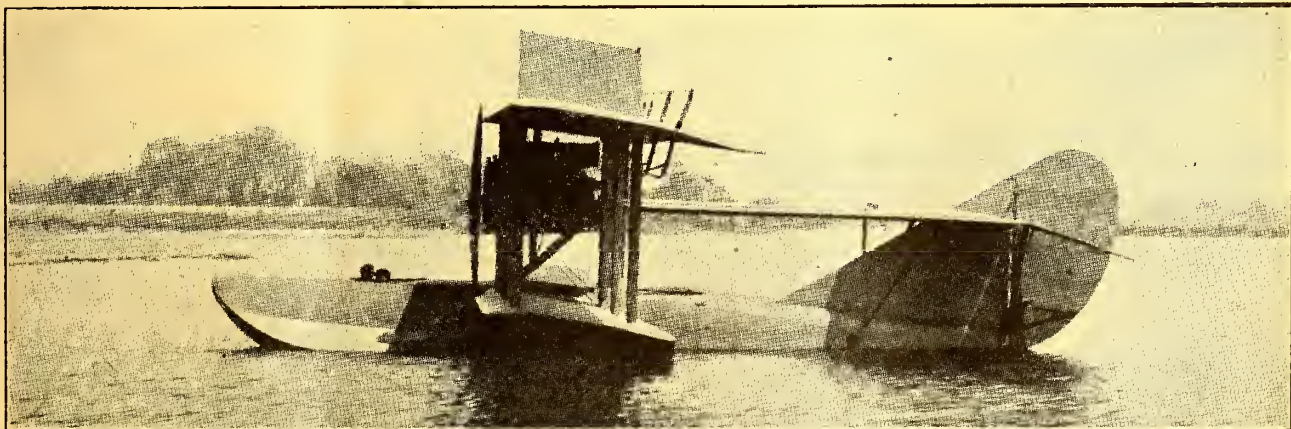
News reached Friedrichshafen last night that one of the latest Zeppelins constructed there was shot down at night during the naval battle while using her searchlight above the British fleet. She disappeared with her crew off the coast of Jutland. A second Zeppelin, reported from Copenhagen to have been lost, is stated to have arrived safely at its base.

Friedrichshafen, however, rejoices in the fact that a Zeppelin, by timely notice to von Scheer of the approach of Sir John Jellicoe's ships, saved the German fleet from destruction.

[These notes bear the appearance of probability, if not of absolute accuracy.—Ed.]

THE ROYAL AIRCRAFT FACTORY.

When the House of Lords reassembles Lord Montagu of Beauchieu will ask the Government whether they are prepared to circulate the recent Report upon the Royal Aircraft Factory; what steps will or have been taken to carry out its recommendations; and what alterations, if any, have been made in the higher staff at the factory.



The New Twin-engine Curtiss Boat, with two 160 h.p. Curtiss Motors.

(Reproduced from the "Aerial Age", New York.)

LORD MONTAGU AND THE AIR SERVICES.

Lord Montagu of Beaulieu spoke at Manchester on June 1st on the need for an Imperial Air Service. The Lord Mayor (Alderman Smethurst) presided at the meeting.

According to Lord Montagu, since the opening last March of the campaign for an improved air service much progress has been made. He spoke with approval of the appointment of Lord Curzon to be chairman of the Air Board. The Government and the Prime Minister had exercised a wise choice, and under Lord Curzon he had every confidence that something would be done. The first combatant nation in this war really to equip and train a large aerial force would have a very great advantage over other nations not similarly equipped.

There was far too great a tendency to self-sufficient complacency in special circles, and it was his sincere belief that, had it not been for newspaper criticisms and the general state of public opinion in the country, there would not have been the progress in aerial affairs which had taken place lately.

Lord Montagu pleaded for inspection of the Air Service, remarking that at present there was a deal of jealousy between the two services which controlled it—the Army and the Navy. Instead of the Air Service being strong and united, it was being run as a divided business, both the Army and Navy competing against each other. They would never make a big thing of the Air Service so long as they had it done by two departments with different methods.

After the war every machine and every man engaged in the Service so long as they had it done by two departments with planes would certainly be very generally used for purely peace purposes, and, in cases where time was of importance, many of those he was addressing would live to see the mails conveyed by aeroplane. Machines now used to drop bombs would be used to drop mails for peaceful purposes.

We should realise the basic fact that we were no longer living on an island, and that industrial centres were liable to attack by aircraft by night, as seacoast towns were by day. At present they were only partially protected, though he was glad to say that under Lord French's regime matters had been improved very much. He was very grateful to Lord French, and his staff for what they had done in a very short space of time, but unless there was constant pressure put upon the authorities there was always a tendency to "slacking" on their part.

A resolution was passed approving of the creation of the Air Board, but urging upon the Government the increasing importance of considering naval and military aviation from the Imperial point of view.

THE HOUSE OF LORDS.

On May 31st a Debate took place on the subject of the National Volunteer movement, in the course of which Lord Desborough mentioned that the work of certain of the Volunteers was to clear the ground for aeroplane work, guard aeroplane sheds, and light the flare to guide the landing of aeroplanes at night.

The patriotism of the "too old at forty-one" section of the male community in banding themselves together in Volunteer corps is beyond all praise, but it is possible that the fact that some of them have been in charge of aerodrome lights accounts for one or two unfortunate incidents that have occurred. Responsible tasks of this nature should be left to men who can be court-martialled for any mistake in fulfilling their duty.

COMPARATIVE LOSSES.

The following table, compiled by the "Times" from the daily official reports issued by the British, French, and German Headquarters, shows that the Allied aviators continue to retain their ascendancy over those of the German flying service. During April they accounted for 49 machines. Last month 58 German machines were brought to earth. Of these 40 are claimed by French and 18 by British aviators. It cannot be, and is not, asserted that all the machines were destroyed. A large number fell into or behind the enemy's lines, and all that is claimed in the majority of these cases is that the machines were seen to fall in circumstances which would reasonably lead to the conclusion that they would be wrecked on landing.

German Main Headquarters takes credit for 41 enemy machines. In April, the number claimed was 24—four British and 20 French. The May figure is made up of—British, seven (these are admitted by our General Headquarters to have been lost), French, 34. Two of the French machines included in the total of 41 were said to have fallen in flames near Froideterre Hill, north of Verdun, but this statement in the German communiqué was unofficially contradicted from Paris.

The total losses for May, namely, 100 machines, compares with 76 in the preceding month:—

	Aerial Fights.	Shot Down.	Driven down or Forced to land.	Total.
British	5	—	2	7
French	23	7	4	34
German	48	4	7	59

[The Germans claim to have lost only 16 machines altogether, and claim to have destroyed 47 of the Allies' machines.—Ed.]

THE AIR BOARD.

A meeting of the Air Board was held on May 31st, Earl Curzon presiding.

LORD SYDENHAM'S RESIGNATION.

Lord Sydenham has resigned his seat on the board of Armstrong, Whitworth & Co., on his appointment as a member of the Air Board.

PAY.

An Army Order, issued on May 18th, fixes the pay of a wing adjutant in the R.F.C. at £1 per day.

A NEW ZEPPELIN?

A telegram from Zurich to the "Petit Journal" reports over Lake Constance a new Zeppelin, 800 ft. long, with four armoured cars and seven propellers.

A FUGITIVE.

An Austrian aviator who came from America three months ago, posing as a Serbian, has escaped from the Alexandra Palace. It is to be hoped that he will not steal one of the latest aeroplanes and fly to Germany.

THANKS.

Mr. and Mrs. Henry G. Melly, of Waterloo, Liverpool, wish to thank their many friends for kind inquiries and congratulations concerning the birth of their son Henry Leonard Greg, born on May 6th, 1916.

THE HENDON ACCIDENT.

Mrs. Mahoney and family desire to express their sincere thanks for the kind sympathy tendered them in their sad bereavement, and for the beautiful floral tributes sent in loving memory of Albert Charles Mahoney, killed whilst flying at Hendon, May 24th, 1916.

MODERN PROPHETS.

Five women were fined at Southend Police Court on May 30th for pretending to tell fortunes. The Chief Constable stated that in certain cases the defendants spoke about Zeppelin raids and matters connected with the war, which, he submitted, was a reprehensible practice.

RAILWAYMEN AND RAIDS.

The President of the Board of Trade has agreed to the proposal of the Railway Executive Committee that railwaymen injured by hostile air raids or bombardment when on duty should be compensated on the same basis as that on which compensation is payable under the Workmen's Compensation Act.

THE R.N.A.S. COMFORTS FUND.

Readers of THE AEROPLANE who are interested in the welfare of the ratings of the Royal Naval Air Service are particularly appealed to for cash and contributions in kind to make it possible for Mrs. Sueter to continue the good work she is doing.

The following is a characteristic consignment sent to an Air Station, and duly acknowledged as having been received in good condition:—

12 writing blocks, pencils and 250 envelopes; 4 packets shaving paper; 36 cakes soap; 12 sticks shaving soap; 24 tooth brushes; 3 tins acid drops; 24 cotton vests; 6 tins cocoa and milk; 6 jerseys; 9 cardigan waistcoats; 8 helmets; 20 pr. mittens and cuffs; 36 pr. socks; 6 mufflers; 12 magazines; 30 packets cigarettes; or a total of 248 articles.

It is trifles of this nature which help to make life more bearable at lonely Air Stations, both at home and abroad.

The following cash contributions have been received:—The Sunbeam Motor Car Co., Ltd., £20; M.N., 2s. Total to date, £1,855 9s. 1d.

Further contributions in cash and kind should be sent to Mrs. Sueter, the Howe, Watlington, Oxon.

MILESTONES XXXII.

Considerable ingenuity was exerted by the French designers in 1911 to produce machines for the military trials. Among the machines produced was the 100-h.p. Gnome-Borel monoplane, with a four-wheeled chassis, and the Astra triplane, with a 75-h.p. Renault engine. This last machine had a surface of about 500 square feet and presented considerable possibilities. Its principal feature was its enormous wheels with large size tyres as an attempt to solve the difficulties presented by the severe landing tests.

The Clement-Bayard biplane was a further development of the Clement-Bayard monoplane, and the type represented in the picture could be converted into a monoplane at will.

The Lohner Arrow biplane with the Daimler engine was an early German tractor biplane built with a view to inherent stability, and it proved very successful.

The Pivot monoplane was of somewhat unconventional French construction, chiefly notable for the special spring chassis and pivoted ailerons at the main planes, though this pivoting had nothing to do with the name of the machine, which was designed by M. Pivot.—W. L. W.

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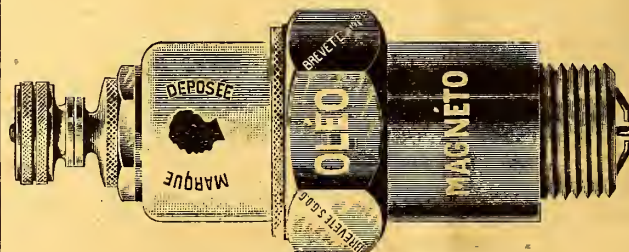
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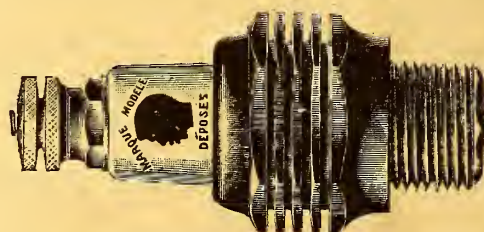
TYPES and TYPE NUMBERS OF OLEO PLUGS

AVIATION.



4/6

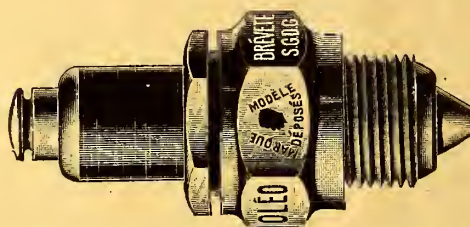
No. 7



10/6

No. 32

Le Rhone, Clerget, etc.



7/6

No. 27 G

Clerget, Gnome, etc.

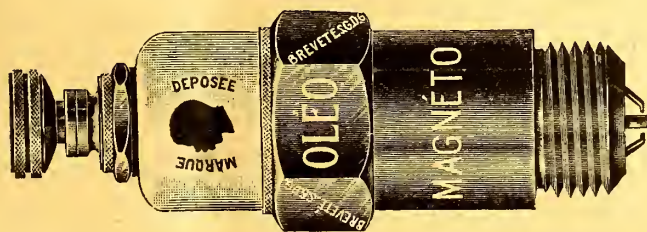


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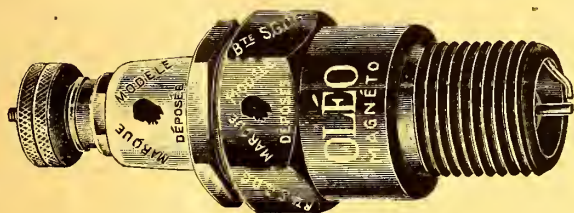
No. 2 A

Gnome, Salmson, etc.

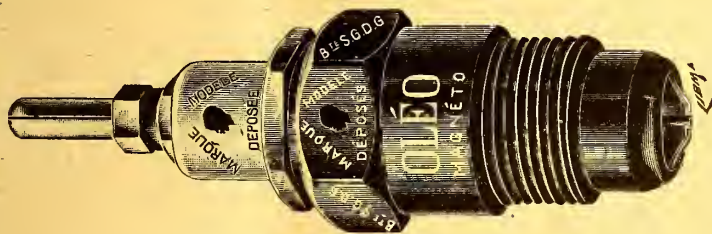
CAR & MOTOR CYCLE.



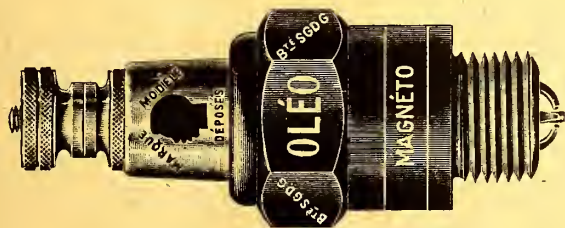
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No. 7



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4/6
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Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

MASTER OR JOURNEYMAN?

Nevertheless, there is a vast difference between the master-craftsman and the most excellent and wholly reliable journeyman of his trade or school. Otherwise, a Guadagnini would be as famous as an Antonio Stradivari. Which he is not—though the model may appear much the same—and nothing can possibly bridge that difference. This appreciating, your Vuillaume will deign to copy nothing less than the "Grand Messie"; and be thankful if, once in his lifetime, he nearly equals that masterpiece with his "Evangelist" quartette; one at least actually as good as nine out of ten authentic Strads, and with a finer harmonic D. If you had ever had "Matthew" under your chin you would know.

But—who remembers Guadagnini of Cremona—the master's favourite apprentice—for all his careful industry? No doubt one of his might "render" a Wieniawski fantasy for you creditably enough; but never could he implore the "Aveü," for you or Franz Hegedus either. Now "Matthew," a hundred years younger, could; and would to any little minx at the end of the next street, unto her last persuasion. And that's the difference.

Also the psychology of the matter, the same in a way with motors as with fiddles, or any other instrument of perplexed art. I am sorry, but there it is. It may be my misfortune to have heard or seen the best of either, for my discontent with anything less; but, having that conscience, I cannot quite see the designer of the Sturtevant motor in the Vuillaume class even of his craft; for all his excellent handling of its commonplaces, which I have already fully admitted to his due.

INCOMPLETIONS.

It is, frankly, not for anything done amiss, but for possibilities—albeit non-essential, perhaps, yet fraught with essential differences—that he has missed, and that a master-craftsman would have seen and embodied forthwith, that he comes short of that class.

That matter of exhaust-valve disposition and consequent exhaust-passage design—his way to four pipes a side, and mine to two only, as suggested—does not much matter, perhaps, except as one of mere appearance and a little practical weight-saving. Let us call it a mere alternative for the sake of his probably quite good, unheard argument on his side.

But with all the difficulties, problems, and restrictions that inherently beset his chosen valve-disposition in line—chief among which are restricted valve-area and consequent irreducible minimum of valve-lift—one cannot overlook that indifferently planned method of water-delivery whereby the water only approaches those valve-chests by way of *exit, fully heated*, instead of by way of prime entry, to assure at least that the valves should be kept cool, whatever else went warm.

Especially when that very warmth would be thermally useful to the cylinder-rendition right to the end of the stroke. It is this neglected possibility—some would even call it a prime necessity—that to my mind crowns, where it might have redeemed, the commonplace and conventional, and lifted the whole clean above that level.

AND ONE NOTABLE ADVANTAGE.

On the other hand, since the stroke has been made nearly 37 per cent. greater than the bore, it is clear that he has seen the advantage—which certain official experts in this country have utterly failed to realise—of losing thereby the slightest tendency to couple and thus gaining the fullest mechanical efficiency from the V-type, quite apart from any further advantage of reducing the overall length of the motor.

A MECHANICAL POINT.

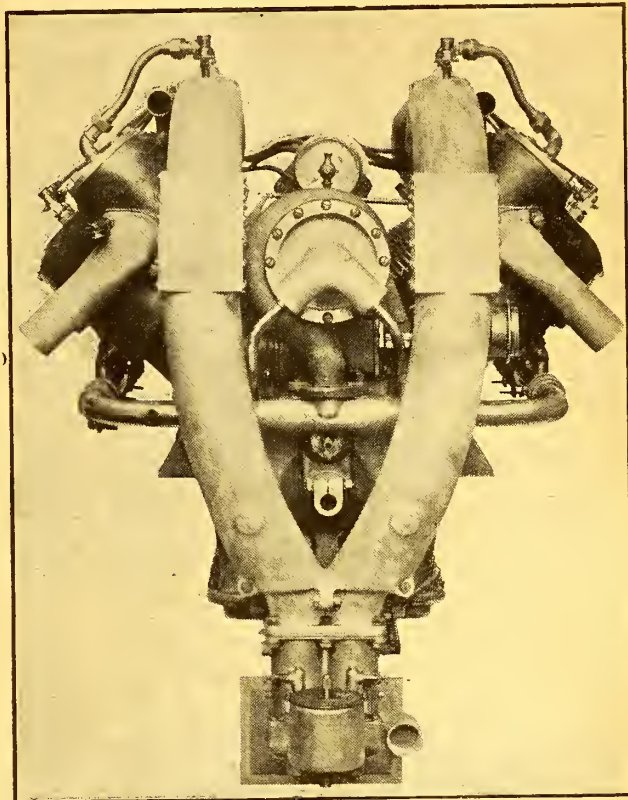
But has this last been pushed to the furthest? Apparently not; for one sees that opposite pairs of cylinders are set out of line; that is in staggered relation. Which shows that connecting-rod big-ends are of the same width in each pair!

Now there is no greater source of crank-shaft weakness than a long crank-pin. You can modify it, of course, by greatly increasing the shaft diameter and hollowing the crank-pin to reduce weight again. So doing, however, you cannot avoid making the big ends broader transversely to match, and increasing thus beyond all proportion the bulk of the whole buckling-to job.

But why should you do all this, or any of it? There are ways, sound and mechanical in every sense, and withal easy to come by, whereby both rods of a pair can, with the width of their big-ends greatly reduced, be coupled up on a common crank-pin, and that a short one. Making the crank-shaft up of multiples, united male and female in the crank-pin itself is only one way, whereby both rods and cylinder-axes may be truly opposed in the same plane, and the total motor-length be reduced—in this case by a full two inches, half the cylinder diameter. There are other ways, well-known in motor-cycle design. Why not exploit some of them?

THE MATTER OF CARBURATION AGAIN.

Of course, the short, direct, and even lay-out of the carburation manifold, as well as its ample diameter, atones for much neglect



The jacketed Sturtevant inlet pipes in the Model 5.

of minor artistic niceties, showing, as it does, the true Rodin-esque grasp of fundamental things. Still, it is not beyond praise or criticism; Rodinism does not take us far enough. We must be Greek, to the detail of a finger-nail. This is an aeromotor, remember. Were it simply a car or marine motor, that manifold might do very well as it is. But aloft we must get all the power possible out of every whiff of mixture, stinge every drop of petrol, even though the station mechanics clean cars and wash their shirts in it. There must be no back-lash nor recoil in the gas-stream.

Therefore I would have those ends re-shaped into a half-hoop connection from side to side, as the immediate result would be a complete figure-of-eight, with the carburettor itself at the centre. Or if—as I believe is the case in the later model—the Renault-like double omnibus-tube arrangement be fitted, what is easier than to lengthen, curve and unite the dead-ends of the tubes? Believe me, either way we shall add no less than 10 per cent. to the power-efficiency; or for the same power save as much as the consumption. We cannot afford to neglect the saving of 2 per cent., much more a certain 10.

A special point—so far peculiar to the Sturtevant design—in the newer Model 5 is that the twin trunk portions of the omnibus manifolds are formed as water-jacketed aluminium castings, square-sectioned to allow for panelling just where they curve towards the cylinders, and fitted with pipe-connections to the valve-chest crown-plates above—the inlets—and from their lower ends direct to the pump.

In this way the jacketing is always filled with the water at its hottest; the result being that the mixture is always kept fairly thin and thoroughly homogeneous at ordinary and low altitudes and free from the slightest constitutional change even at the very highest. Such, indeed, are the vital advantages of this system of manifold-jacketing—which, after all, is only an adaptation of the exhaust-jacketing used for years in marine motor installations using kerosene as the carburant—that it might well be adopted generally: especially as it lends itself to practically any design of manifold.

On the other hand, while admitting the claim that the position of the carburettor below the level of the base-chamber—the Renault-de Dion way—assures a full gravity feed under all conditions, is accessible, and so forth, it is undeniable that in this position this vital part of the motor-system is all the more vulnerable. Taking all considerations together, then, one would recommend, in combination with water-jacketing all over the manifolding, the central overhead position, even if the fuel-feed had to be pressure-assisted with a hand-pump and a lightly-set blow-off

air-valve. Better a little complication—the risk of a flood of petrol taking fire owing to a chance shot tearing away the connection exists in any case—than automaticity with the risk of irremediable failure of the motor and loss of machine, pilot and observer because that shot from beneath has hit the unprotected carburettor.

AND SOME INTERNALS.

So much for special points. The mechanical bones of the Sturtevant are very much the same as in a dozen others of the V-type. I still maintain that the valve action could not be more direct, though one urged twenty times the superior possibilities of overhead vertical or diagonal valves that might be worked from a single overhead cam-shaft and rockers. True enough, in a vertical motor.

But in a V-type there must needs be two such shafts. This way, we have one, and neither tappets nor rockers with it. And the cam-shaft is a fat one, well hollowed out to form an overhead oil conduit to its own bearings and the propeller-shaft reduction gear, supplied in the first place by upward leads from the crank-shaft bearings. It also carries a small eccentric on one end that works a little secondary oil-pump, the purpose of which is to draw fresh oil from an external supply-tank, so that no more than a couple of gallons of oil is actually carried in the base-chamber at any time.

The circulation system of any motor that does not depend on air or thermo-syphonic cooling and splash lubrication is obviously a matter of efficient and simply designed gearing to begin with. In this respect the Sturtevant design could hardly be improved upon, as a train of spur-gearing enclosed in an oil-bath casing at the after-end of the motor drives the cam-shaft in the first place, and then the water-pump and the rotary oil-pump and the magneto-spindles in series; the oil-pump, it is to be understood, being operated from the crank-shaft.

Hence the lubrication-system follows the conventional design of most force-fed systems: that is, through passages cast—or drilled—in the metal of the base-chamber to the main bearings—lengthwise for the main duct and then diagonally downwards as usual—then into the hollow crank-shaft, into the connecting-rod bearings; and at the same time, through secondary upward leads into the hollow cam-shaft, which, of course, distributes the oil to its own six bronze bearings and the gear-casing. The base-chamber is divided from its lower casting by a fine-mesh metal screen upon which all the return oil falls and is cleansed before reaching the pump. It is this lower casting—which is ribbed beneath to cool the oil—that, as already stated, contains the main

supply of about two gallons, supplemented by the little auxiliary pump on the cam-shaft end.

The ignition system—two Bosch or Mea magnetos—is installed in the conventional manner of V-type motors, face to face within the V-space, with the spindles in line, in all models hitherto: a position which naturally affords the best protection short of actual encasement within some portion or other of the crank-chamber casting.

So much for externals. With regard to internal detail there is little to be said beyond the usual specification-matter that—except here and there—does not go outside accepted practice of the best order, and so hardly calls for extensive description. Thus the pistons, being of the same quality of "semi-steel" as the cylinders, depend rather upon their internal ribbing—which enables their trunk-metal to be thinned slightly—for their lightness and strength rather than on anything else. The gudgeon-pins, like the crank-shaft and connecting-rods, are of special hardened chrome-nickel steel: the H-section connecting-rods, however, being made of a special air-hardening grade of this steel, which, after being heat-treated, is claimed to possess a tensile strength of 250,000 lbs. to the square inch. They are machined all over for the last refinement of balance, and are bushed at the small ends with phosphor-bronze, while their big ends are lined with Sturtevant's own white metal.

Beyond the fact that it is machined from a billet of steel, and not forged to shape, there is nothing much to be said concerning the crank-shaft; for, since it is hollowed, it practically follows that it would be of ample diameter: this being, if anything, on the side of excess, so that breakage, despite long crank-pins, need not be feared. Of the two parts, the more interesting, perhaps, is the propeller-shaft. This is carried on two large ball-bearings, and itself carries a ball-thrust bearing of ample size so as to take the thrust of either propeller or tractor without imposing undue stresses on the crank-chamber, these being also well dispersed over the massive dome-like casing that houses the bearings and also serves as a casing for the nickel-steel spur gears, which are arranged in sets for any reduction from the crank-shaft speed of 2,000 r.p.m. to any ratio from 1,000 to 1,500 r.p.m. for the propeller.

All according to the most up-to-date, if conventional, practice, taking and embodying the best of it thoughtfully for the purpose of special function, and discarding the questionable or inappropriate, which, after all, is the chief guarantee of the chiefly desirable aeromotor quality: trustworthiness.

(To be continued.)

AIR CURRENTS.

In spite of the shortage of paper and wood-pulp, which causes so much anxiety each week in the offices of THE AEROPLANE, there is apparently enough left to provide new picture post-cards for those whose taste lies in that direction. One which has reached this office is neatly embossed with the crest of the R.F.C. in gold, and under a sketch of some sort of a monoplane are these lines:—

They call us "The Eyes of the Army,"

For we scout for the foe far and wide.

(This seems distinctly unsportsmanlike, and their efforts should certainly be directed for the benefit of their own country first.—Ed.)

And with all information worth having

We keep the powers fully supplied.

There are corps who bear much longer records

For brave deeds, yet History will find

That in the great fight for the cause of the right

OUR AIRMEN were not FAR BEHIND.

This is most discouraging, and no doubt the Air Enquiry Committee will look carefully into the truth of this statement that our airmen were behind, although not far.—D. W. T.

* * *

The irreverent captain of a cruiser which had something to do recently with the destruction of a Zeppelin referred his brother officers who congratulated him on his success to "Hymn 224, last verse." The verse runs:—

"O happy band of pilgrims,

Look upward to the skies,

Where such a light affliction

Shall win so great a prize."

* * *

Curious accidents happen occasionally. At an important aircraft factory in the South of England, where many women are employed, they willingly wear overalls, and look very smart in them, too, but by way of a feminine touch it seems their custom to arrange for a wisp of hair to reveal itself under the caps which cover their heads.

As a result there have been many cases where the hair has caught in drilling machines or something of that kind, and the managing director's office is said to be ornamented with various hirsute trophies which have been torn out by the roots in this fashion.

[This paragraph should have appeared under the heading "Hair Currents."—Ed.]

A certain mechanic employed by a Lancashire aircraft factory, who had been the hero of a most daring achievement in mid-air, was recently married, and the directors thought it a fitting opportunity to present him with a testimonial.

Accordingly he was handed a substantial cheque, together with a letter expressing the hope that he would keep it as a mark of their goodwill and appreciation.

It is reported that, under the circumstances, he does not know whether he is expected to cash the cheque or not, and the episode has been quoted in the Royal Aero Club as a horrible example of Lancashire economy.

WARING AND GILLOW'S REPORT.

Among well-known firms who have found their ordinary business adversely affected, and who have turned their attention to the manufacture of aircraft, Messrs. Waring and Gillow apparently intend to occupy a prominent position. The high-class furniture for which they have so long been famous can, for the present, be dispensed with, and if the directors were not men of resource the shareholders would be in an unhappy position.

The report and accounts for the year ending January 31st, 1916, have now been issued, and, thanks chiefly to the Government contracts for aircraft and other supplies required for the conduct of the war, the results are remarkably good.

The profit, after allowing for depreciation, etc., amounts to £106,349, which compares with £41,763 for the preceding year, the balance, after charging amortisation of leases, directors' and auditors' fees, etc., being £100,885, as against £35,217. Debenture interest, etc., absorb £30,000, so that the available total, including £9,430 brought forward from the previous year, is £80,315, as against £9,430 a year ago. The Preference dividend for the year from February 1st, 1915, to January 31st, 1916, amounting to £45,000, is being paid, £20,000 goes to writing down discount and underwriting commission, and the balance of £15,315, subject to excess profits duty, is being carried forward.

From these excellent figures it is very obvious that the directors are dealing with the resources of the company, in a very critical period, in a manner which reflects the greatest credit on all concerned. The improvement in the financial position will give considerable satisfaction to the shareholders, who have passed through somewhat trying times, and the progress of the aircraft department of Waring and Gillow looks most promising.—D.W.T.

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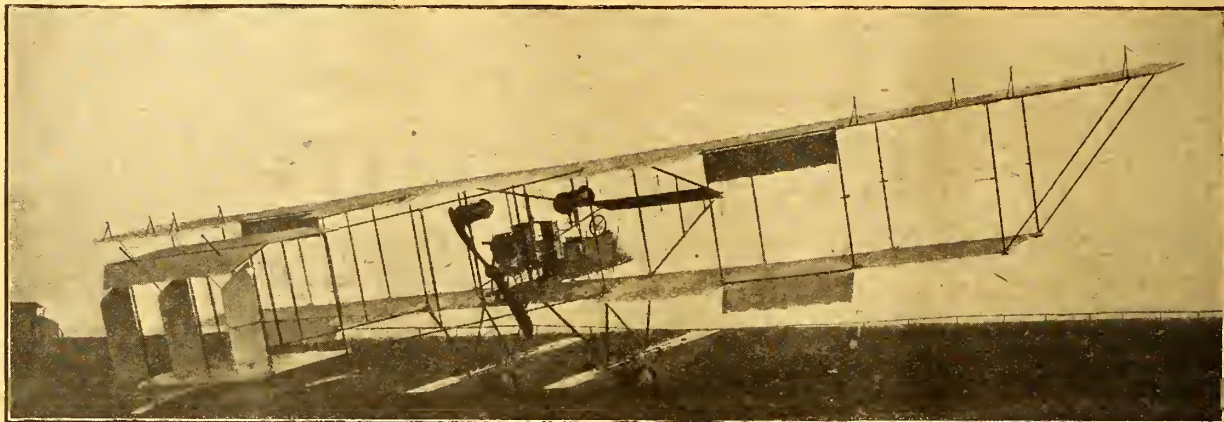
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The Development of German Aeronautics.—*continued.*

BY W. L. WADE.



Early Albatros Twin-float Pusher Seaplane.

AN INTERNATIONAL EPISODE.

The misplaced enthusiasm of the German police at this time caused some inconvenience to M. Clement Bayard. The famous dirigible constructor had been paying a business visit to Frankfort, Hamburg, and Berlin, accompanied by two of his engineers, and on their way home they determined to stop and watch the behaviour of the local Zeppelin which was manœuvring outside Cologne. While they were lunching they were accosted by police-officers and escorted to the police-station, where they were searched and questioned, and finally locked in the cells. Next morning they were interviewed by the Public Prosecutor and finally released.

FLYING THE CLOCK ROUND.

At the end of May, 1914, Herr Landmann put the world's duration record up to 21 hours 50 minutes. Starting at 8.30 p.m. on an Albatros biplane, he flew right through the night and into the next afternoon, to be brought down by shortage of petrol.

Herr Oelerich also put the world's altitude record up to 25,756 feet, which is a little short of five miles, where it still remains. He flew a standard D.F.W. biplane.

Landmann's record only remained for a few days, for Herr Böhm, flying the same machine, kept aloft for 24 hours 10 minutes, a performance that has yet to be beaten. The Albatros biplane on which these wonderful duration flights were made was fitted with a Mercédès engine of only 75 h.p.

And then came the war! Undoubtedly the German people were as much surprised by its sudden precipitation as were other countries, but as regards her flying service Germany was far more prepared than we were.

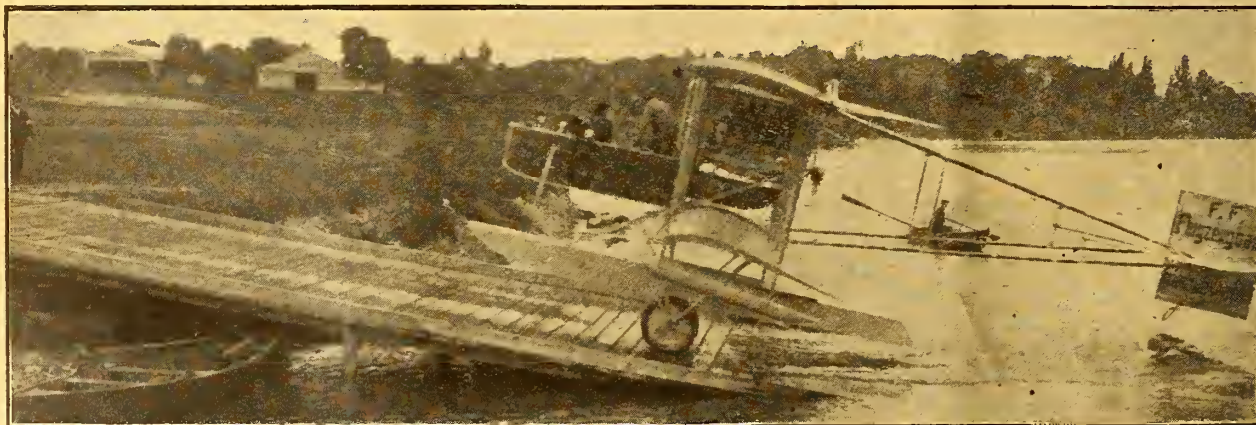
GERMAN COMMON SENSE.

There is every reason to believe that she had at least 1,500 first-class machines ready for use. This estimate is based on the known fact that for some months previously the Mercédès firm had been turning out 100-h.p. aero motors at the rate of 130-140 a month. The various other engine firms had been working at full strength, and probably the total monthly output was 250. These engines were built for use, and not for show. The Albatros, Aviatik, D.F.W., Rumpler, L.V.G., and A.E.G. firms had had more orders than they could deal with for a long time, and there was also the enormous reserve of machines which had been accumulating at the different military air stations.

As regards pilots, Germany was in a rather peculiar position. She had hundreds of magnificent cross-country pilots, both military and civilian, but most of them lacked the necessary dash which makes the type of soldier who goes readily for a forlorn hope. In those days the possibilities and perils of aerial warfare were problematical. The aviators who went out on war service went out into the unknown. It is significant that, although at this time Germany held practically all the world's records for distance, duration, and height, she had failed to capture a single speed record, because her pilots would take no long chances on a machine with a high landing speed.

But for lacking this virtue, the Germans could have driven every enemy aeroplane out of the sky, and have read the Allies' dispositions like a book.

As it was, the little company of British aviators went out to France, thinking they would be wiped out during the first fortnight; but they went cheerfully, and, owing to German caution, they survived. During the first dark



Zeppelin Biplane Amphibian.

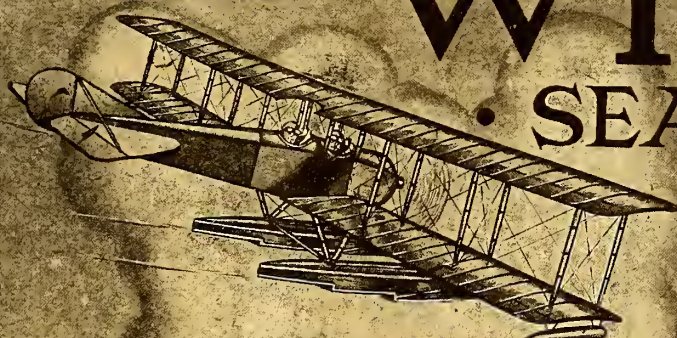
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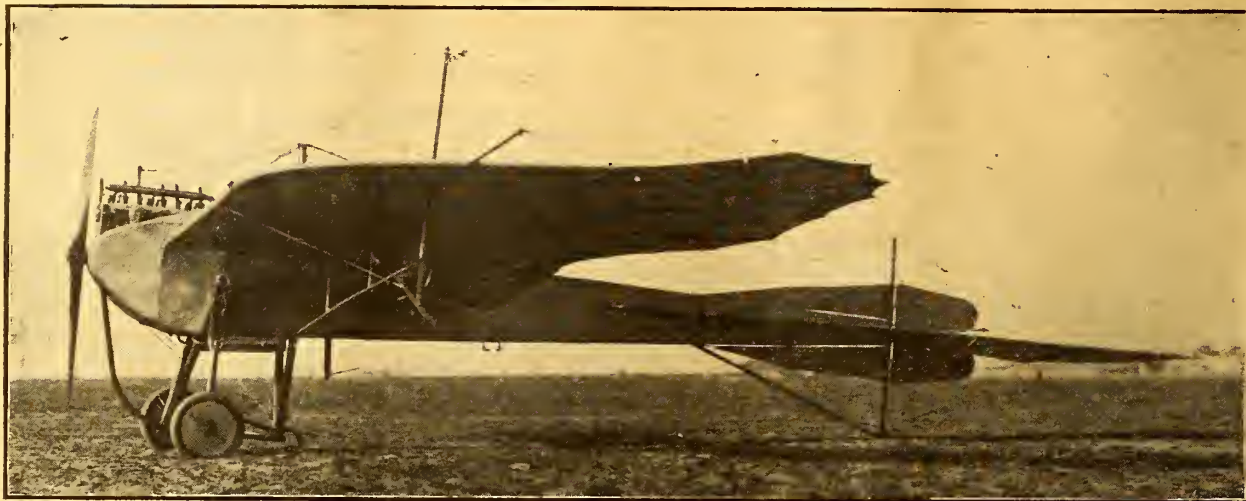
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A Typical Taube Monoplane.

weeks of war they served the whole of the Allied fighting line from the north to Paris, the French pilots being concentrated on Alsace, and were undeniably directly responsible for the arrest of the German advance.

GERMAN IMPROVEMENT IN PILOTS.

Since that date, when the German aviators discovered that there were more certain ways of committing suicide than by facing the enemy artillery, they became more and more venturesome, and now they are more than ready to meet their opponents, though many of their pilots still exhibit a curious hankering for what the Americans call "safety first."

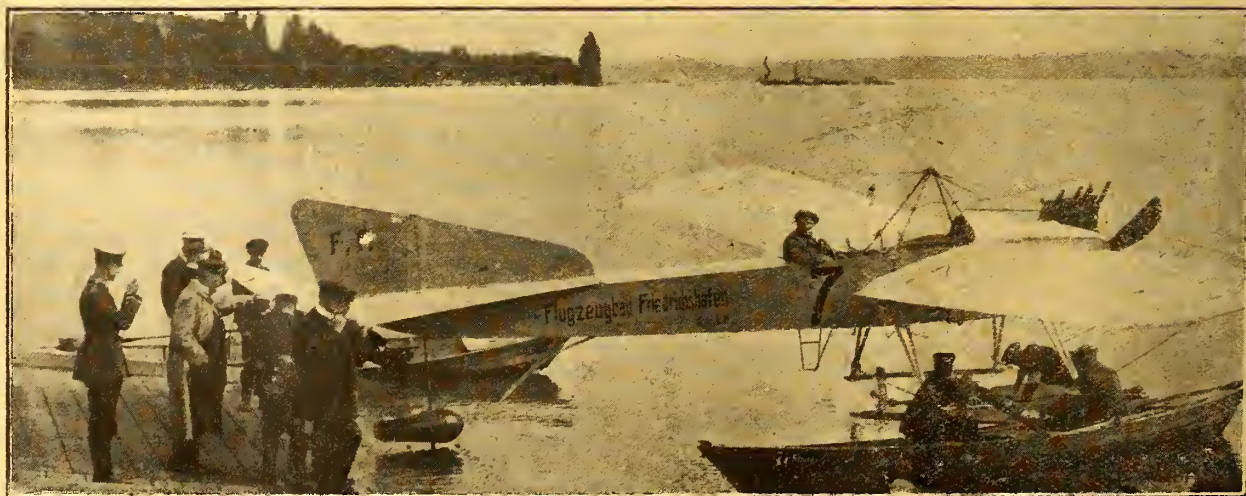
So far as the German war aeroplanes are concerned, the lamentable fact obtains that the majority of German aeroplanes can climb higher and can climb faster than the majority of the machines possessed by their opponents. The slow-climbing, wallowing Tauben have practically disappeared, except from the "flimsy" of lay journalists. The curved swept-back wings have also largely been eliminated, and parallel and symmetrical wings seem most popular, chiefly because they are more adaptable to light construction. The old heavy German machines have gone for ever. The modern standard insists on lightness commensurate with strength, moderate surface, and plenty of power, and power of a kind which can be relied upon. German machines very seldom have to come down in front of their lines because of engine trouble.

Fabulous German super-Tauben are written of with bated breath by those who have never seen them. Cer-

tainly several interesting twin-engine machines have been exhibited by the enemy over the fighting line.

Undoubtedly, however, the existing *pièce de résistance* of the German Flying Corps is the big 150-200 h.p. single tractor fuselage biplane, which, if need be, can carry three men and two machine-guns at a high rate of speed and climb. From time to time this type of machine in the hands of Germany's finest pilots has dominated the fighting line over which it has appeared, and it has only been the prowess of Allied aviators on faster though less suitable machines which has held them in check. These were reinforced at the end of 1915 by the small over-engined Fokker monoplanes, which are copies of the French Morane and are strafing machines pure and simple, having small fuel capacity and wonderful climb and speed. As *aéroplanes de barrage* to prevent enemy air scouts from penetrating the German lines they are excellent, but their high speed makes them impossible to land in rough country. Consequently their use is confined to France and certain parts of Russia, the big fighting machines being used in the Balkans and other parts of Russia, where landing grounds are few and where reliability and the ability to cover long distances without breakdown are necessities.

As far as the future is concerned, undoubtedly the German engineers, aided and not hindered by the German scientists, will do all they know to keep their end up. Whether they can supply enough *sympathique* pilots to fly the enormous air fleets they will have presently is a matter for biologists and psychologists, not for me.



A Zeppelin Water Monoplane on Lake Constance.

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IN THE EARLY DAYS.



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COLONIAL A.M.s.

The following cable has been received by the Union Government from the Secretary of State for the Colonies: "Owing to the completion of the establishment of the Royal Flying Corps, mechanics from the Colonies cannot be accepted for enlistment." Therefore, mechanics desirous of proceeding to England at their own expense to

enlist in the Royal Flying Corps should note that they will not be accepted in England.

[Which seems rather peculiar in view of the trouble which is being taken to find really good mechanics for this rapidly growing Corps. Possibly, however, the Authorities have changed their minds since the cable was sent.—Ed.]



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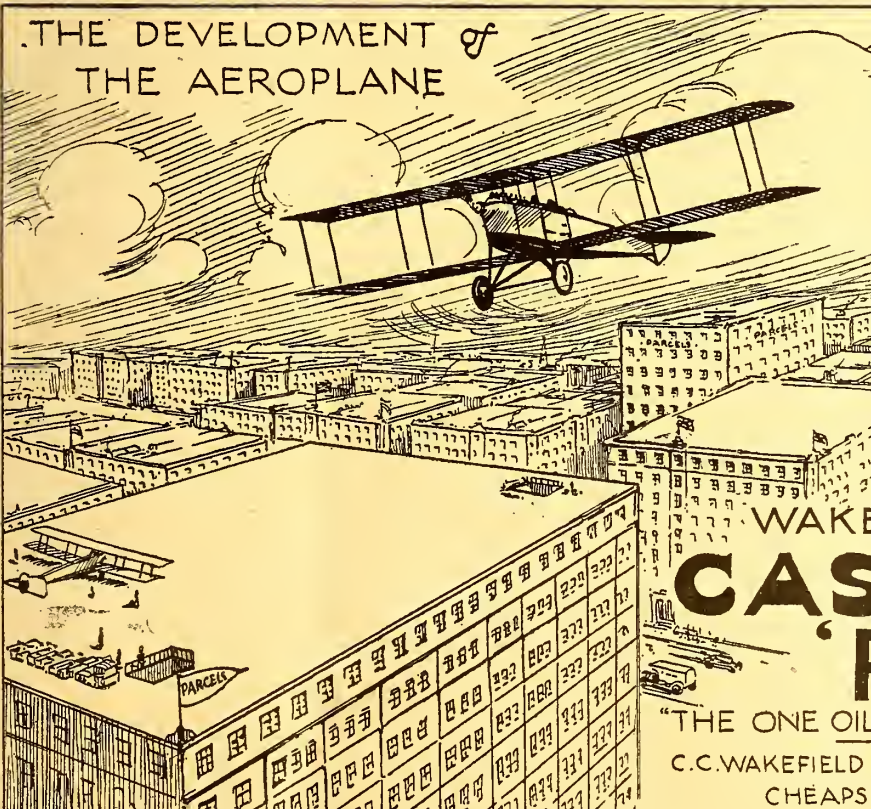
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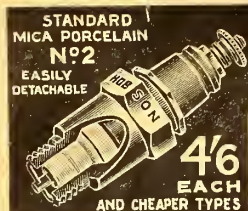
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PROTECTION FOR PILOTS.

The County Chemical Company, Limited, have placed on the market a fabric body shield intended for infantry on active service. This invention consists of a number of layers of specially prepared linen fabric overlapping one another so that a large number of layers are superimposed on every portion of the shield. The layers of fabric are sewn into a species of khaki waistcoat and chemically treated to render their work more effective. Two varieties are produced, one affording protection merely to the chest, and the other protecting chest, back, and sides.

Numerous tests have shown that this shield is capable of resisting bayonet thrusts, and even revolver bullets at close quarters.

Of course, no claim is made for the shield to resist a Mauser rifle bullet fired at point-blank range, but there are so many wounds, and even fatalities, caused by spent rifle bullets, shrapnel balls, and small fragments of shell that the possession of such a protection should be an additional insurance to the wearer just in the same way that the official steel helmet now supplied to the troops has saved many a life under certain conditions.

The effect of the weight of the waistcoat, especially in the double variety, on a soldier taking part in a charge on a hot summer's day, can only be ascertained by practical test on active service, but it seems just possible that a soldier, who has been

accustomed to carry a 60-lb. pack on his back, would not feel the extra weight unduly, especially as, considering the protection it affords, the waistcoat is comparatively light.

Whatever may be the possibilities of this device for trench warfare it seems distinctly promising as a protection for aviators.

In the first place, an aviator does not have to walk about in his machine, at any rate at present, although the future suggests a very long walk for the officer of the watch on the Paris-Pekin Airline.

To come back to the present time, it may be repeated that a waistcoat of this description would impose no great strain on the pilot, and as, in any case, he is obliged to be warmly wrapped up, the shield would form an excellent chest-protector so far as cold is concerned. The pilot of an aeroplane on active service is constantly passing through a hail of machine-gun bullets, shrapnel balls, shell splinters, odds and ends chipped off his own machine by these various missiles, and, on top of all this, in the event of a forced landing as the result of any of these mishaps, he is quite likely to get run through the body by broken struts in the machine.

It would appear, therefore, that the Chemico Body Shield, in conjunction with the bullet-proof steel seat fitted in service aeroplanes, would materially decrease the chances of an aviator's being



The County Chemical Co.'s Bullet Proof Shield in use. On the left the shield is seen unpierced after withstanding revolver bullets. The metal drum shows the dents made in it through the unpierced shield. The right-hand picture shows the shield worn as a waistcoat. It is not claimed that it will stop rifle or machine-gun bullets at short range, but it might well make merely a nasty jar out of what would otherwise have been a fatal wound from a spent bullet or splinter.

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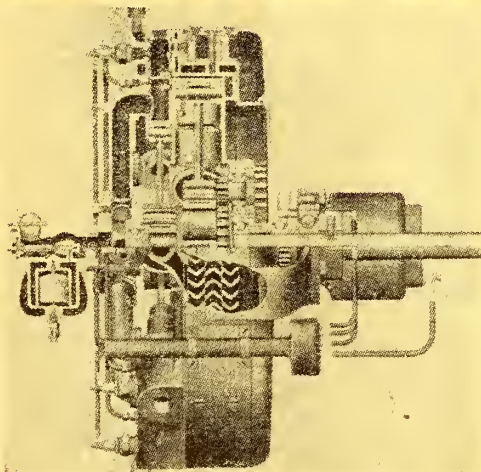
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knocked out by small and relatively slow projectiles. Incidentally there seems to be room for a well-thought-out combination of a shrapnel and concussion proof helmet. In an aeroplane where only a couple of men are concerned, there is no justification for the omission of any protection which might add to the safety of both the men in the machine. There is absolutely no sense in the quixotic idea that it is cowardly or undignified to adopt anything in the shape of protection, an idea which presumably originated in the days when an officer could afford better armour than his men, and thought it unsportsmanlike to take advantage of the fact when leading them into danger. This is more especially so because the information an aeroplane may be carrying may be worth many times the intrinsic value of both crew and machine.

Of course, one can appreciate the point of view of the officer in the trenches who refuses to adopt any protection which is not available to his men as a body, but in the case of the Royal Flying Corps the position is quite different, and it is to be hoped that the possibilities of this device will be thoroughly tested.

Inquiries should be addressed to the County Chemical Company, Limited, Chemico Works, Bradford Street, Birmingham.

NON-JAMMING DOORS.

The Aston Construction Company, Ltd., Eaglewharf Road, London, N., announce that they have, after considerable trouble and lengthy experiment, produced a door for aeroplane hangars which really solves the problem at last. It is made on the folding principle, and embodies several unusual features.—J. F. A.

SOUTH AFRICA.

The wonderful ingenuity of the average journalist in mangling Service nomenclature is admirably demonstrated in the following paragraphs from South African papers:—

Mr. Norman Cook, son of Mr. F. Cook, of Cape Town, has been appointed flight sub-lieutenant in the Royal Naval Air Division. Mr. Norman Cook is an old student of Elsenburg Agricultural College.

Mr. Kilgour Parker, eldest son of Mr. John Parker, ex-Mayor of Cape Town, who went to Sandhurst a short time ago, has a commission in the Royal Aviation Corps.

Mr. Percy Leonard Lindup, second son of Mr. G. N. Lindup, of Cape Town, has been appointed 2nd lieutenant in the S.A. Aviation Squadron of the Royal Flying

Corps. Mr. Lindup was private secretary to Sir Thos. Watt, Minister of Posts and Telegraphs and Public Works.

Mr. C. J. John, who has arrived in England to join the Royal Flying Corps as a mechanic, is a son of one of the lecturers on the staff of Elsenburg College, and served through the South-West Africa campaign in the machine gun section of the 1st Kimberley Regiment.

[The fourth shot scored, anyhow.—Ed.]

CANADA.

The "Brandon Weekly Sun," a quaint Canadian production, reports as follows:—

Eighteen young men of Winnipeg will leave for England shortly to go into training for commissions in the Royal Flying Corps. They have taken this step as the result of a conversation between Lieutenant-Colonel W. A. Munroe, officer commanding the Ninetieth Overseas Battalion, and Lieutenant "Billy" Powers, recently a prominent local motorist, who went over to England at the outbreak of the war and jumped into the flying game.

Six of them will leave the latter part of November, and the others will follow as soon as possible. They are making the trip at their own expense, taking a chance on getting through the test successfully.

Those who have expressed their intention of taking up flying work are: J. R. Ross, N. W. Leslie, W. M. Matheson, R. E. Spiers, G. A. Maywood, D. F. Ellis, Frank Turner, C. N. Bawlf, Bill Smith, Dunc Macdonald, Bill Anderson, Don Roland, V. B. Perse, Byron Ireland, Frank Bulling, Bay Nares, Lee Nicholson and F. L. Tate.

[One admires their readiness to take a sporting chance at their own expense, even if one cannot admire the local journalist's rendering of their names. One also hopes that their Colonial "pull" will ensure them a more sympathetic reception and less ambiguity as to their position on the "Waiting List" than has been the case with various English gentlemen who have desired to fly for their country.—Ed.]

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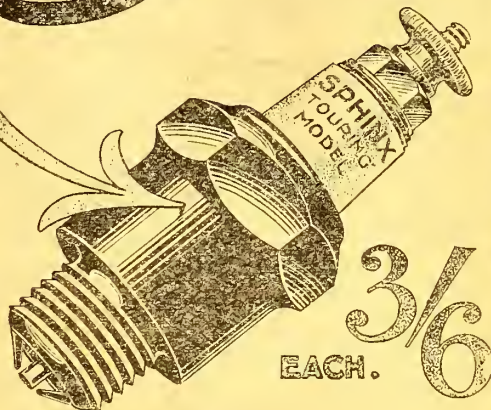
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K.L.G. PLUGS.

Necessity is the mother of invention, and it was necessity which called into being the K.L.G. sparking plugs. Mr. Kenelm Lee Guinness, the famous driver of Sunbeam racing cars, suffered a good deal in the early days from plug troubles, in common with other drivers of modern racing cars fitted with high-efficiency engines.

After considerable experimenting he evolved a plug which proved itself superior to anything else procurable at the time. It was this plug which was used on the Sunbeam car which was the first in the world to accomplish 1,000 miles in twelve hours. Other world's records, followed quickly, and the plug began to be used for various other racing cars which gave trouble with plugs.

The plugs were first produced in 1913, and as they were designed for a very special purpose very great care was taken in their construction and only the very best materials obtainable were used. In fact, it does not appear to have been Mr. Guinness's intention to produce them for merely commercial purposes. Such was the success of the plug, however, that Mr. Guinness found himself besieged with orders and eventually found it necessary to lay down considerable plant for the production of these plugs. The outbreak of war caused a stoppage, in Europe at least, of motor-car racing, and Mr. Guinness immediately turned his attention to the aeroplane engine, and since then the entire works have been given over to the production of plugs for this purpose.

The patentee, who was personally controlling the output, having been sent back for the time from the R.N.V.R., in which he was a lieutenant, in order that full advantage might be taken of his experience, is always introducing fresh improvements, and hopes shortly to place upon the market a plug which will be even better for high-efficiency aero-engines than the one which the Admiralty is at present finding so satisfactory.

The manufacturers, the Robin Hood Engineering Company, Newlands, Putney Vale, make several types, and have been gratified to find that their plug for low-compression rotary engines has had quite as remarkable a success as the original plug for high-compression engines. This plug, which is made in two parts, can be taken to pieces and any oil deposit can easily be removed from the inside of the body and from the insulator and electrode and put together again in the shortest possible space of time. It is interesting to note that Mr. Hawker used this new plug when he made his recent height record.

The Robin Hood Engineering Works are not in a position at the moment to turn out plugs for ordinary motoring purposes. They wish to be regarded solely as sparking plug specialists and have

no interest in supplying plugs to anyone until he has tried all the other makes without success. Then it is their pleasure to study the peculiar conditions and produce a plug especially suited to the requirements.—J. F. A.

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The premises recently acquired are capable of accommodating a large quantity of machinery, and there is plenty of room for fitters, welders, copper-smiths, and other workmen, together with the necessary office accommodation and inspection department. The present warehouse in Little James Street will continue to be used for purposes of packing and distribution, as before.

The works will be under the supervision of Mr. P. D. L. le Patourel, A.M.I.C.E., a gentleman of considerable engineering experience both at home and abroad. Curiously enough, Mr. le Patourel was at one time concerned with one of the chief railways in India, and Mr. Herring-Smith, who is responsible for the buying side of the Aircraft Supplies Co., was also connected with the same railway, although at a later date.

Mr. G. H. Mansfield is the managing director, and the registered office will be at 17, John Street, W.C.

The fact that Mr. Mansfield has now become a manufacturer of many of the aircraft accessories in which he deals will very materially strengthen his position with the industry generally. It seems more than probable that in the near future there will be still further developments.

Several automatic machine tools have been installed, and others are on the way. One consignment of machinery was unfortunately lost a short time ago owing to the vessel on which it was being conveyed meeting with a hostile submarine.

Mr. Mansfield has spent many years in studying the aircraft industry from the inside. He has made a special feature of giving prompt deliveries, and to this fact no small share of his success has been due. With the new workshop in full swing he will naturally be in a much better position as regards quick deliveries, and his enormous capacity for hard work ought to ensure success.—D. W. T.

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A ten-hour continuous run was recently conducted on one of the U.S. Navy motors at Hyde Park. The average horse-power developed during the test at 2,000 r.p.m. was 141. On the following day a brake-horse-power test was run off on the same motor, which developed 145 h.p. at 2,025 r.p.m. Upon completion of the test the engine was completely dissembled for inspection. With the exception of two exhaust valves, which showed a slight indication of leakage, thus accounting for the somewhat lower horse-power developed, the various parts revealed no excessive wear.

The above tests were witnessed by Mr. F. B. Conway, the U.S. Navy Inspector of Aeronautical Material.

THE WEEK-END AT HENDON.

Showers about lunch time on Saturday kept many people from Hendon, and the attendance was far from good. There was a

gusty wind, but many flights were made and numbers of passengers went up in the Grahame-White three-seater.

Various Service machines were flying around, but nothing of special note occurred. Mr. Manton reappeared, after a six weeks' absence due to rheumatic fever, and was congratulated on having made a complete recovery.

The Ruffy-Baumann marquee has been erected, and a new 60-h.p. Caudron type machine has been added to the school equipment. Another, having a 50 Gnome, is almost ready for work.

On Sunday the weather was, like the little girl of whom the poet spoke, very very horrid, and the aerodrome was about as cheerful as Goldsmith's Deserted Village.—D. W. T.

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Muriel Countess Helmsley and Mrs. Rowton beg to acknowledge the following contributions towards their fund for prisoners of war in Germany:—From the employees of Vickers, Ltd., Weybridge Works, £17 4s. 6d.; from the employees of Vickers, Ltd., Bexley Heath Works, £6 18s. 6d.

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Machines in use: Grahame-White bipanes.

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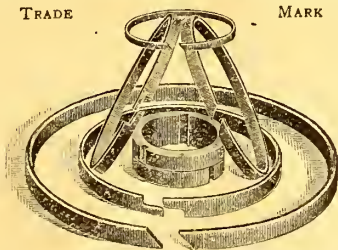
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Figures of eight or circles alone: Messrs. Moore, Pulford, and Brake.

Certificates were taken by Messrs. F. Moore, L. Pulford, and L. H. Brake.

Machines in use: Three tractor biplanes.

During the month of May the school took thirteen Royal Aero Club certificates.

AT THE HALL FLYING SCHOOL.

Pupils with Instructor P. G. Allen: Messrs. Skinner, Russell, Jones, Guy, Illingworth, Corder, Davis.

With Instructor Charles Bell: Messrs. Deape, Dickson, Gudgeon, Skinner, Collier, Worswick, Rand.

With Instructor Cecil M. Hill: Messrs. Taylor, Rochford, Worswick, Rand, Gaskell, Jones, Guy.

Machines in use: Hall and Caudron Government type tractors.

Certificates taken by Messrs. Taylor and Rochford. Both of these pupils took splendid certificates at an average height of 1,000 feet, and did glides from 2,000 feet with well-judged landings. The brevet tests were made on a 70 h.p. Isaacson engine Hall-Caudron tractor biplane with 90 Curtiss, "Ebora" propeller.

AT THE BEATTY SCHOOL.

Instructors for the week: Messrs. G. W. Beatty, G. Virgilio, A. E. Mitchell, and H. Fawcett.

Pupils out during the week: Messrs. le Champion, Gliksten, Atkin, Drewery, Barrow, Martin, Roberts, Knox, Brewerton, Phillips, Stanley, Dowding, Davy, Gaskin, Hoskins, Earl, Skcet, Kay, Edwards, New, Jones, Whitmore, Garlick, McPherson, Mitchell, Venables, Towson, Elliott, Austen.

Machines in use: Beatty-Wright dual-control and single-seater propeller biplanes; Caudron dual-control and single-seater tractors.

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Pupils with Instructor: Carr, Edgar, Wilson, Dobson, Portella, Torres, Di Balni, Baily, Maya, Strauss, Fanshawe, Westlake, Williams, Fraser.

Pupils doing straights or rolling alone: Messrs. Baily, Williams, Winter, Fraser, Hoskyns, Whitaker.

Pupils doing figures of eight or circuits alone: Baron D'Opstael, G. Strauss, and M. Portella, the last-named making an exceptionally good series of flights.

Machines in use: 50 and 60 h.p. Ruffy-Baumann tractor biplanes.

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Pupils rolling alone: Messrs. Kennedy, Pritt, Scammanga, Daniel, Green, Brandon, Turner, Hammersley, Hinchliff, Little.

Pupils doing straights alone: Messrs. O. Wilson, J. Wilson, Gordinne, Smith, Adamson, Barlow.

Pupils doing half-circuits alone: Messrs. Gordinne, Morris, O. Wilson.

Figures of eight and circuits alone:—Mr. C. Gordinne.

Certificate was taken during the week by Mr. C. Gordinne.

Machines in use: 35 h.p., 45 h.p., 60 h.p. Caudron tractors.

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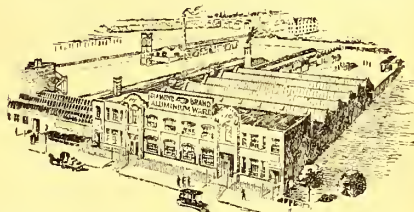
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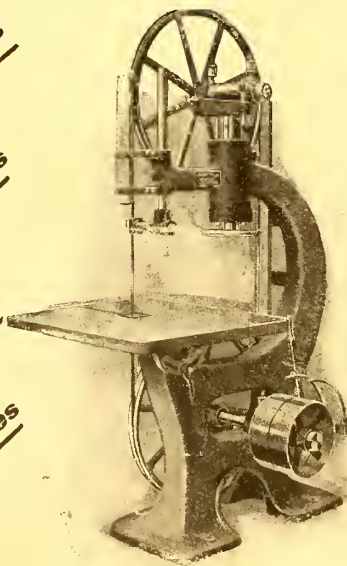
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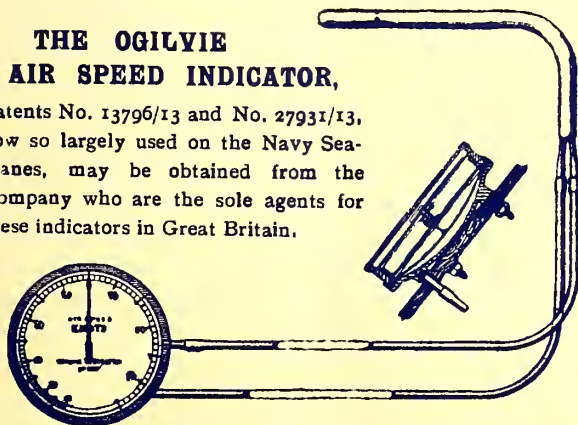
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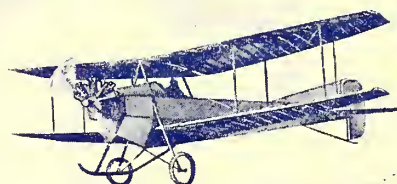
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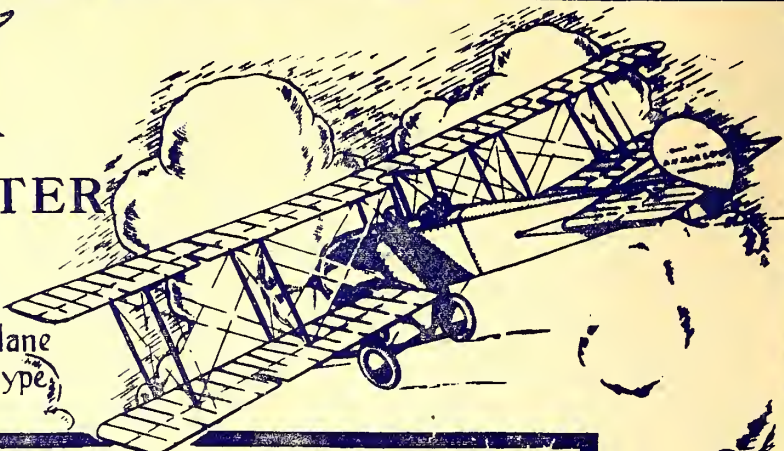
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ON A SUGGESTION FOR THE R.A.F.

A persistent rumour, which cannot be altogether neglected, on account of its apparent universal acceptance in the Royal Flying Corps by officers and men alike, has it that great changes are shortly to take place at the Royal Aircraft Factory. It seems to be the general impression that Mr. Mervyn O'Gorman, C.B. (Lieut.-Col., temp., T.F.), is to be promoted to a more important position, which will give greater scope to his abilities.

This appears natural, for it seems fairly evident to anyone who knows anything of the work done in the R.A.F. that the control of such an establishment cannot give adequate employment to a gentleman whose value to the nation is estimated by the Authorities at £3,000 per annum.

It is possible that if the Government had had the wisdom to pay the Superintendent R.A.F. that trifling salary—which is merely that of some Cabinet Ministers, and a little more than that of an Admiral or a General—when the establishment was first formed, things might have been different, but, with the usual official policy of spoiling the ship for a ha'p'orth of tar, the War Office merely doled out the paltry stipend of £1,500 in order to secure Mr. O'Gorman's services for three days per week.

Naturally, no man can put his whole heart and soul into a business on a three-day a week basis, especially when he has to attend to the business out of which he makes his real bread and butter on the other three days. One can easily understand and forgive, therefore, if certain fundamental errors crept into the R.A.F. in its early days, such as the appointment of unsuitable people in certain departments, and a wrong view as regards the utility of the mere commercial Aircraft Industry, and if the output of the factory in quantity and quality hardly comes up to what a £60 a week Superintendent would desire. One feels sure that Lieut.-Col. O'Gorman, bearing, as he does, all the proud traditions and patriotic feelings of the old Irish nobility, cannot entirely approve of the manners, methods, or matériel produced by his underlings, and that if the rumour of his promotion proves to be well founded he will accept the writer's congratulations on leaving.

As to the form which his transference to a higher sphere is to take, if one knew one would not disclose it, in the interests of the nation and the prosecution of the war. One assumes that the degree of his promotion cannot be less than to K.C.B., as was anticipated by a friend of his in conversation with a friend of mine some three months or more ago, and the expectation cannot be left unfulfilled much longer. One also assumes that he will be promoted to Brigadier-General (temp.) and will be given a suitable command somewhere—as in the case of General Seely. Thence one deduces that the High Authorities have some definite appointment awaiting him, for one cannot contemplate with equanimity the spectacle of so distinguished an officer and gentleman, in the current phrase of London Town, "all dressed up and nowhere to go."

A CONSTRUCTIVE CRITICISM.

The humble suggestions of this paper have on occasion been adopted, or at any rate followed, by the High Authorities, so one has less hesitation in making further suggestions, especially while during the existence of the R.F.C.

Enquiry Committee all destructive criticism is barred from this paper by the desire not to prejudice a case which is *sub judice*.

One ventures to submit, therefore, that Mr. O'Gorman—plus his new rank and honours—should be given command on active service of an R.F.C. Brigade composed entirely of the Territorial unit which he now commands so conspicuously. The Hampshire Aircraft Parks, the R.F.C.'s only Territorial section, might be transformed into a brigade of the Military Wing, R.F.C. One imagines that there are sufficient sportsmen among the staff and junior officials to make a fair number of decent pilots, even if they are incapable of becoming engineers.

The safe jobs on the ground would be ably filled by senior members of the Staff, many of whom already hold military rank, albeit with the parenthetical (T.F. temp.) thereafter. The "hands" at the R.A.F., many of whom now belong to the H.A.Ps., would provide the necessary air mechanics, and N.C.Os. And, of course, no machines other than those of R.A.F. design would be issued to the brigade.

It would perhaps be rash to suggest that this new force should replace any existing R.F.C. brigade in France. One would rather advocate their forming an experimental brigade, so that their high scientific attainments might be used to the best advantage. It would always be interesting to see, for example, whether a twin-engine machine of R.A.F. construction could beat the old twin Caudron in climbing over the German lines with full load, or whether in the effort to attain climb by extreme lightness the fuselage was apt to break off if a passenger were carried aft of the pilot. Little matters of this kind are so much more convincing when experimented over the attentions of "Archie" than when tested over our British Plains, whether Laffan's or Salisbury's.

Also, as a detached brigade, not co-operating with any Army Corps in particular—co-operation has never been the R.A.F.'s strong point—the new force might be spared for long distance bombing operations, which would not only relieve real soldiers of the R.F.C. of work for which they can ill be spared, but would give the producers of the R.A.F. engines and aeroplanes a priceless opportunity of proving the absolute reliability of their motors and the ability of their machines to lift a big load—qualities about which, one regrets to say, lamentable scepticism has been shown. In this way O'Gorman's Army could do highly valuable work—one omits the usual handle to the commanding officer's name, partly because one is uncertain as to what his rank and title may be from day to day, and partly because the omission is a recognition of distinction, as who should speak of Joffre's Army, or Carson's Army, or, for the matter of that, Larkin's Army.

THE REPLACEMENT OF LABOUR.

Of course, the manning of a full brigade from the R.A.F.-H.A.P. combination would sadly deplete the personnel of the Factory, but one imagines that the vacancies caused by the wholesale empressment of the present hands could be fairly easily replaced. There exist in hundreds of country villages all over the British Isles local joiners

and carpenters and blacksmiths who are over military age and who find trade slack owing to material and horses having been taken over by the Army, and these men—who within their limitations have learnt their trade thoroughly—could very soon be taught enough by capable and hard-working foremen to exceed the rate of output per man at the R.A.F. to-day.

Also, it would be much more consoling to the R.F.C. at Farnborough at dinner-time to see a thousand or so grey-bearded, horny-handed sons of toil hobbling off to their food than to see some few hundreds of able-bodied men in the prime of youth athletically chasing the full dinner-pail in a state of sartorial cleanliness, which apparently indicates efficiency at the R.A.F., but which was regarded, when the present writer worked in the shops, as a sign that the owner of the clean clothes did little or no work. And the R.F.C. would be still more pleased when

they realised that there was no difference, or perhaps a change for the better, in the output.

It is to be hoped that the High Authorities will not regard as a breach of the Defence of the Realm Act the brilliant little military scheme outlined above. One submits that the suggestion is calculated to encourage everyone connected with aeronautics in this country, and that it is calculated to strike terror into an enemy whose ideas of officially designed aeroplanes are derived from accounts in the Press written by joy-riding neutral journalists—with or without their tongues in their cheeks—and whose ideas of the producers of such machines must be proportionately exalted.

One further submits that the scheme cannot affect the strategic or tactical position, since no hint is given as to whereabouts, or on what part of the line, the blow should be permitted to fall.—C. G. G.

ON THE FUNCTIONS OF A ROYAL AIRCRAFT FACTORY.

Opinions differ considerably as to what precisely should be the functions of a Royal Aircraft Factory. There are undoubtedly those who hold that if the air defences of this country are to be placed on the most highly effective and efficient basis, the production of all aircraft should be entirely in the hands of Government officials, that the bulk of aeroplanes, at any rate, and possibly ultimately of airships as well, should be turned out from a huge aeronautical Government dockyard, and that the work of mere commercial manufacturers should be simply the supplying of parts of engines and aeroplanes made entirely to Government design and subject to rigid inspection by Government officials.

This system might work perfectly well in an ideal Socialist community where "all were for the State," and where personal ambition would never lead a man to condemn another man's better ideas, or where no man was ashamed to admit that another's ideas were better than his own. Such a community, however, has never existed, and never will exist until human nature is entirely changed, and one needs very little knowledge of history to realise that all progress has been the outcome of commercial competition, aided, perhaps, by scientific research, but that never has progress come by the unsupported efforts of a Government department.

It has been previously pointed out in this paper that Vickers and Lewis machine-guns, Thornycroft and Yarrow destroyers, Parsons turbines, and all other improvements in weapons of war have been produced by commercial firms. Also it is well to remember that while dockyard-built warships may be in some ways, or in some cases, better constructed than some ships produced in private yards, most of the chief steps in naval progress have been appropriated by the dockyards from ships on order for foreign Governments, in which the commercial warship designer has been given a free hand by some minor Power. It is as well to get these historical facts into one's head, for history has a curious way of repeating itself.

THE USE OF EXPERIMENTS.

As hereinbefore stated, only constructive criticism is, for the time being, permitted in this paper. Therefore one ventures to set forth what might be the functions of a Royal Aircraft Factory which was devoted solely to the interest of the State and in which the advancement of its personnel was not permitted to affect its policy.

In the first place, such a Factory should exist primarily for experimental purposes. When any point of interest had been discovered the technical heads of the various firms of aircraft constructors should be invited to meet at the Factory and discuss the alleged discovery. The fullest information should be given to these people, so that if there was anything new in the idea they could use it to

their own advantage. On the other hand, if any of them had tried the same notion themselves, or could see a flaw in the official argument, they should be encouraged to set forth its advantages and disadvantages, and thus many expensive further and fruitless experiments might be saved.

Such a method of procedure would be vastly superior to the alternative method of making all experiments in the deepest secrecy and then flaunting the result, gained at vast public expense, in the faces of commercial constructors whose hard-earned money had actually helped to pay for those experiments.

Any suspicion of commercial interest should be carefully avoided by the ideal R.A.F. If the authorities happened to strike upon a particularly good type of engine made by a commercial firm, orders for this engine should be handed out fairly to commercial aeroplane constructors. They should not be kept exclusively for use in aeroplanes of Government design.

It is an indisputable fact that if during the past eighteen months newer and better engines had been handed out as they were evolved to the Trade for use in new types of aeroplanes, many commercial firms would now be building aeroplanes with a vastly better performance than they can now put up. Certain new British aeroplanes, which must be nameless, but which have put up most astounding performances, owe their success primarily to the fact that their constructors have been able, somehow or other, to obtain the very latest and best engines with which to demonstrate in practice ideas which their designers have had for months—if not for years. It therefore becomes the function of an ideal R.A.F. to produce the best aeroplane it can with the latest and best materials, and then the War Office should make sure that any commercial firm which has shown ability in the past shall have the benefit of the R.A.F.'s experiments, and the use of any engines, accessories or material which may enable that firm to produce something better than it has done in the past, even if the result beats the official product.

A MATTER OF HISTORY.

In this connection it is just as well to remember that never at any time has any officially designed or constructed aeroplane put up a better performance than the best aeroplane produced by private enterprise at the same period; and that seldom, if ever, has the best official aeroplane beaten on performance the first two or three commercial aeroplanes, taking the machines, of course, type for type and power for power. At the present moment every aeroplane designed or constructed by the R.A.F. has been beaten by Trade-built aeroplanes of its own class and power.

From this one may deduce the fact that as an experimental department an R.A.F. may be of very high value,

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whereas, as a competitor with the Trade—a competitor who at the same time has considerable influence over the minds of people in authority whose duty it is to judge Trade products—it may do infinite harm to progress. Needless to say, the officer controlling this department should be a practical engineer with a leaning towards scientific research, but he should on no account be a text-book scientist without workshop experience.

A USEFUL CHECK.

Another function of a Royal Aircraft Factory should be to act as a check on production costs. Those in authority over the Nation's money might call it acting as a check on the rapacity of commercial manufacturers.

One would suggest, therefore, that an R.A.F. should have a comparatively small experimental producing department under the control of a really skilled and experienced works manager, whose duty it would be not to interfere in any way with design, but solely to experiment in the matter of production. That is to say, he and his staff should be employed in finding out the cheapest and most efficient method of producing parts of aeroplanes and in putting them together, experimenting equally with Trade designs and with official designs, and comparing them impartially.

He could experiment with new machine-tools, he could experiment with the Taylorisation of labour, he could experiment with new methods of working new materials, and from these experiments it should be possible for the Government department which controlled the price of aeroplanes to find out what was actually the real cost of production. The results of all experiments in this department which enabled the Works Manager to produce more cheaply without any deterioration of quality should then be communicated to the Trade, and Works Managers of commercial firms, or Works Foremen, should be admitted freely to view new, cheaper, and more efficient methods of production.

This department should be entirely independent of the department experimenting in aerodynamics, physics, and chemistry, and an entirely different type of man should be placed in charge. The effect of such a department would be to reduce the cost of aircraft to the nation while still allowing the manufacturer fair commercial profits. It would have to be borne in mind, incidentally, that profits allowed to manufacturers would have to include a handsome margin to permit of the manufacturer carrying on his own experimental department, whose function would be to produce machines of a new type.

THE REPAIR AND SPARE QUESTION.

Yet another function of an ideal Royal Aircraft Factory would be to repair damaged or worn aeroplanes and

engines sent back from active service. This department might conceivably be under the control of the same official who controlled the Commercial Production Experimental Department, for improved methods of manufacture discovered in his other department would probably apply in the majority of cases to the production of spare parts and repaired engines. In both these spheres of activity the existing R.A.F. has been a notable failure.

On the pure commercial production of aeroplanes or aeroplane parts—apart altogether from purely experimental work—one is fairly safe in estimating that the cost per part, say, of a complete wing or a complete tail unit, and taking in establishment charges, apart from the purely experimental departments, is at least three times that charged to the War Office for a similar part by the most financially voracious Trade constructor in the country.

Similarly on the repair side, whereas it is a commercial proposition to rebuild a large 6-cylinder water-cooled engine and put it through its tests in a week, provided an adequate supply of spares is forthcoming, it seems that the R.F.C., reckoning on R.A.F. habits, regards three weeks as a reasonable time for the operation, and it is doubtful whether the R.A.F. itself has ever succeeded in maintaining an average of a month an engine on the same work.

SPARES.

The manufacture of spare parts, especially of metal parts, for aeroplanes of all sorts, and the production of spares for all types of engine used by the R.F.C., should be another function of the ideal R.A.F. While engine manufacturers particularly are being pressed to produce every complete engine they can from their works, it is almost impossible for them to keep up an adequate supply of spares, especially of the smaller parts.

When a factory is equipped for the production of engines the factory manager lays down his plans to produce each part in proportion to the number of complete engines he intends to build. That is to say, if he is building a 6-cylinder water-cooled engine he will produce 6 cylinders and 12 valves with their appurtenances for each complete crank-shaft and cam-shaft. If he is wise he will probably lay out to produce a few extra of all the smaller parts, as they are more easily lost or damaged, but if one is laying out to produce 500 engines, there is very little use in making 600 sets of parts for complete engines so as to have 100 complete sets of spare parts.

Therefore it might well be a function of an R.A.F. to produce in reasonable quantities at short notice, for any type of engine, the spare parts which experience on active service showed to be necessary. For example, if it were discovered that in a certain type of engine, otherwise excellent, exhaust



THE AMERICAN ESCADRILLE IN THE FRENCH ARMY.—Left to right, Capt. Thenault, of the French Army, in command. Bert Hall, the humorist of the Escadrille, Victor Chapman, who has theories of his own about aerial tactics, and Kiffin Rockwell, formerly of the Foreign Legion, who brought down the first German machine he ever saw in the air. In all there are about 50 Americans in the Escadrille.



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valves needed renewing more than anything else, or if gudgeon bearings in connecting rods gave out quicker than the rest of the engine, the R.A.F. Spares Shop could be turned onto these at once, whereas if a sudden call were made on the manufacturer for a large number of exhaust valves or a large number of gudgeon bearings or pins, they could only be supplied at the expense of disorganising his output of complete engines.

Of course, in the ideal engine everything should wear out at once, like the famous "One-Hoss Shay" of the poem, but the best of engines is singularly human, and has its little weaknesses, for which due allowance must be made, always provided it is reasonably reliable in other respects.

In the manner suggested the R.A.F. Spares Shop could be made a kind of "dash-pot" to adjust sudden variations of pressure between the producer in the factory and the consumer on active service—increasing the efficiency of both without interfering with either.

Naturally this semi-commercial department of the R.A.F. would have to be in charge of an able man who could show that he had "made good" on work of a similar nature in civilian life. He need not be a high-class scientist, but he must have had workshop experience, and he must have the knack of handling men, both as regards getting their best work out of them by instilling them with enthusiasm and driving them when necessary, and by selecting at sight the best quality of man.

FINDING THE MEN.

In view of the fact that the Superintendents of the R.A.F. Scientific Experiment Department and the R.A.F. Commercial Production Department would have to deal with military officers of fairly high rank, it would be advisable that they themselves should also hold military rank, so as to avoid the disadvantages of being mere civilians under military control. It would also be advisable that they should be of equal status, without anybody in

immediate command over them except the Director-General of Military Aeronautics, so that they should be of equal rank to one another.

The reason for this equality of rank is that the Scientific Department might conceivably have views on, for example, the limits of size of parts of aircraft which, while conferring no appreciable advantage in actual flying quality or speed, might make it impossible to produce such parts as a commercial proposition. Such scientifically accurate but commercially absurd limits have already done very great harm to the output of aircraft in this country, and have caused vast quantities of perfectly good material to be scrapped without the slightest advantage to the resulting aeroplanes. In fact, I have even heard of a scientific department imposing certain limits on certain parts, and then discovering that these parts were of foreign construction, and that the original designer, whose product is highly efficient, never worked within several hundred per cent. of such limits, which, one suggests, indicates that when one is out to produce the most effective possible Flying Corps one would be wise to set more store by the practical engineer and less by the text-book scientist, who has so far failed to make good in anything.

It is true that there might be considerable difficulty in finding an altruistic scientific officer to control the purely experimental department, and still more in finding an officer with sufficient experience of commercial production to make a success of the Costs and Spares departments. But such men do exist, and even within the writer's own limited experience he could fill the two posts quite satisfactorily from among officers already concerned with military aviation. Such officers would do these jobs thoroughly satisfactorily on their ordinary Army rates of pay, and they would be spurred on to put forth their best efforts by knowing that they were serving their country better in such capacities than they had yet had the privilege of doing.—C. G. G.

A BRITISH PIONEER IN AMERICA.

The following extracts from the "New York World" will be of interest to those who have followed British aviation from its early days. Mr. Patrick Alexander spent large sums on aeronautical experiments before men ever flew, and later equipped an aerodynamic laboratory for the boys of the Imperial Service College at Windsor, where much good work has been done.

The American paper says:—

"The war will go on another two or three years. Germany will not be on the decline until 1918. Aircraft will play an increasingly important part, and the side with the best aircraft will win. And out of the wreckage will evolve an international without frontiers, for the war is proving the possibility of aerial travel and transport, which eventually must obliterate artificial boundaries."

Patrick Y. Alexander, a wealthy Englishman who has devoted a large part of his fortune to the development of aeronautical science, expressed the foregoing opinions yesterday to a representative of the "World." He is spending a few days here at the Hotel Vanderbilt and renewing acquaintances at the Aero Club of America, where he is a member and visitor once or twice a year.

Mr. Alexander's father, Andrew Alexander, was one of the founders of the Aeronautical Society of Great Britain in 1866. Patrick inherited a large fortune and his father's hobby. In 1878 he built his first glider model. As geographer and explorer he has trotted the globe in every direction. He was the official British observer of a Zeppelin's first ascent. He reported the Wrights' first flight, and was a close friend of Prof. Langley.

So when Patrick Alexander talks about aviation, those who really know the history of its development give attention.

"The science of aeronautics is in its infancy," said Mr. Alexander. "No man can foretell its possibilities. Twenty years ago I was thought crazy for predicting what now has happened. But I do not see the end short of the neutralisation of the force of gravity. Then we shall be able to launch a craft as bulky as the 'Aquitania' and travel will be generally through the air. Don't tell me it is impossible! Someone yet will find the secret and unlock it. Someone will discover how to make Newton's apple fly back to the tree—perhaps a Chinaman, perhaps a Peruvian, perhaps some American genius will do it. It is no more incredible than flying seemed to be twenty years ago."

"There are three great new factors in this war that make it different from any other war that was ever fought," says Mr. Alexander. "They are aircraft, the wireless telegraph, and the

internal combustion engine. They have compelled such rapid readjustment that the older fighting men have been retired, and only the young men, abreast of these modern scientific developments, are generally being thrust into the positions of responsibility. We are now equipping aeroplanes with a wireless apparatus having a sending radius of 150 miles. I was astonished to be told that on this side your navy's aeronautical equipment so far has provided only ten or fifteen miles of wireless communication.

"It is true that England," Mr. Alexander declares, "has not attained yet her stride in aeronautics. We have 1,000 factories turning out aeroplanes or parts. Women are proving very faithful workers in the aeroplane factories as well as in other munition plants. What we need—and you need it, too—is aeronautical leadership. We need a man or men who can apply aeronautical science in offence as well as in defence. You must remember that the man who can do this must know naval as well as military tactics. He should be an admiral and a general and a geographer and a statesman, all in one. The day is coming for England, and for America, when the aeronautical branch will be more important than either the Army or the Navy."

"Your movement to take account of your industrial possibilities and provide for their mobilisation is the most important step you have taken toward preparedness," he says. "Had we been thus prepared ourselves, the chances are that this war would be over by now. We have been able to buy aeroplanes in America. Fortunately they are good aeroplanes."

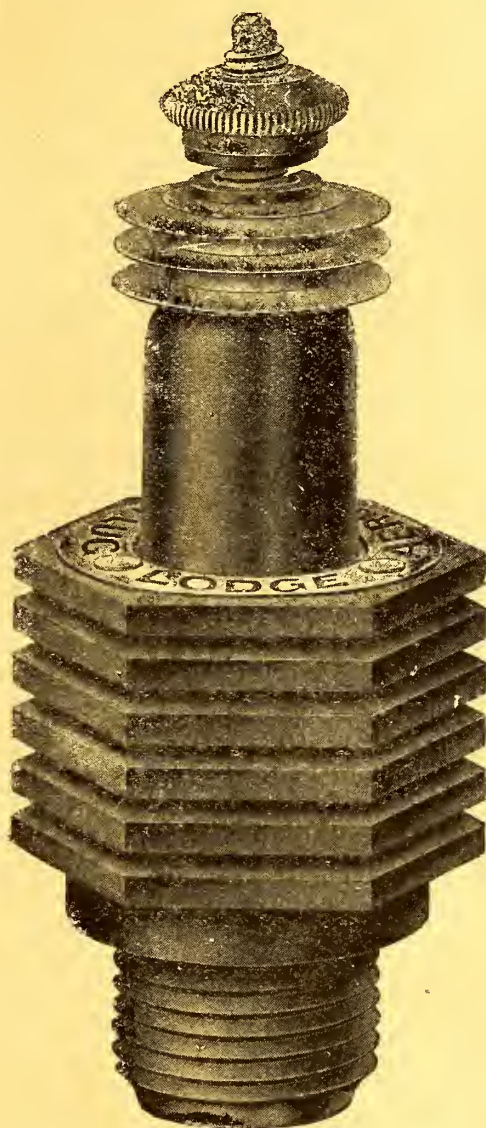
"You are turning out now some of the best aeroplane motors in the world. What you need now is some Henry Ford to standardise aeroplane construction so that a serviceable machine can be bought for £200 or £400. Aviation is not going to be for ever the sport of wealthy men. The air is going to be the great, open highway over land and sea. We are going to travel through it because it is the quick, direct, delightful route. We are going to transport our wares that way, too. In another ten years we shall be thinking in terms of taking the 'Aquitania's' and 'Mauretania's' out of the water."

FOR PRISONERS OF WAR.

The following contributions are acknowledged towards Lady Helmsley's and Mrs. Rowton's Fund for Prisoners of War in Germany:—From the employees of Vickers, Ltd., Weybridge Works, £6; from the employees of Vickers, Ltd., Bexley Heath Works, £4.

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NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," June 6th, 1916.

ADMIRALTY, June 2nd.

R.N.V.R.—To be temp. Sub-Lts.:—Flight Sub-Lt. S. A. Turpin, R.N. (May 6th); D. Y. Sharrock, W. W. Farthing (June 5th).

WAR OFFICE, June 6th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—FLIGHT COMDRS.—From Flying Officers, and to be temp. Capts. whilst so employed.—Lt. W. A. Summers, 18th Hrs. (March 18th); Lt. G. S. M. Ashby, R.A. (May 15th).

ASST. EQUIPT. OFFICERS.—Temp. Lt. W. B. Cushion, 22nd Manch. R., and to be transf'd. to Gen. List (April 13th); Sec. Lt. J. E. Appleyard, S.R. (May 16th); temp. Sec. Lt. T. C. Noble, Gen. List (May 25th).

MEMORANDUM.—Pte G. Knight, from 3rd Co. of Lond. Yeo., T.F., to be temp. Sec. Lt. for duty with R.F.C. (May 27th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—To be Sec. Lieuts. (on prob.):—H. H. W. Vowden (May 3rd); F. M. Iredale (May 8th).

REGULAR FORCES.—MACHINE-GUN CORPS.—MOTOR MACH. GUN SEC.—Lt.-Comdr. N. H. Nutt (R.N.V.R.), from R.N.A.S., to be temp. Capt. (May 20th).

* * *

From the "London Gazette" Supplement, June 6th, 1916.

Lord French, the Field Marshal Commanding-in-Chief, Home Forces, has recommended to the Army Council the names of the following officers for distinguished service in connection with the defence of London against hostile air raids:—

Maj. F. V. Holt, D.S.O., Oxford and Bucks L.I. and R.F.C.

Maj. T. C. R. Higgins, R. Lancaster Regt. and R.F.C.

Sec. Lt. A. DE B. BRANDON, R.F.C. (S.R.).

Sec. Lt. C. A. RIDLEY, R. Fusiliers and R.F.C.

These officers have shown great bravery and readiness to take risks of all sorts, going up and landing at night in all weathers, more often than not under most dangerous conditions. Sec. Lt. Brandon is the first pilot to succeed in dropping bombs on a Zeppelin at night.

* * *

From the "London Gazette" Supplement, June 7th, 1916.

WAR OFFICE, June 7th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—FLIGHT COMDRS.—From Flying Officers and to be temp. Capts. whilst so employed.—Lt. C. H. Dixon, Yorks L.I., Spec. Res. (May 17th); Lt. C. W. E. Cole-Hamilton, R. Scots (May 21st); Sec. Lt. (temp. Lt.) K. T. Dowding, R. W. Surr. R., T.F. (May 22nd).

From Flying Officers.—Capt. M. G. Lee, 40th Pathans, Ind. Army (May 24th); Sec. Lt. C. D. Danby, Tyne Elect. Engrs., T.F., and to be temp. Capt. whilst so employed (May 27th).

FLYING OFFICERS.—Sec. Lt. C. R. Clapperton, Clyde R.G.A., T.F. (April 26th); Sec. Lt. F. A. Coward, R. W. Surr. R., and to be sec'd.; Temp. Sec. Lt. H. G. Smart, Gen. List; Sec. Lt. W. E. Nixon, K. O. Scot. Bord., and to be sec'd. (April 29th); Lt. W. W. Higgin, Liverpool R., T.F. (May 13th); Sec. Lt. A. J. Hamar, S.R.; Sec. Lt. R. Buck, S.R.; Temp. Sec. Lt. J. Blackwood, Gen. List (May 14th); Temp. Sec. Lt. A. M. Thom, Gord. Highrs., and to be transf'd. to Gen. List; Sec. Lt. T. Davidson, Cam'n. Highrs., T.F.; Sec. Lt. R. D. Clinch, S.R.; Sec. Lt. D. Cloete, S.R.; Temp. Sec. Lt. L. L. Richardson, Gen. List (May 16th); Sec. Lieut. (temp. Capt.) L. P. Aizlewood, York. and Lanc. R., T.F.; temp. Lieut. A. C. Jowett, North'l Fus., and to be transf'd. to the Gen. List; Lieut. E. G. A. Bowen, R.A., and to be sec'd.; temp. Sec. Lieut. V. W. Harrison, R. Fus., and to be transf'd. to the Gen. List; Sec. Lieut. G. N. Anderson, Leic. Yeo., T.F.; Sec. Lieut. (on prob.) S. C. T. Littlewood, N. Lan. R., Spec. Res., and to be sec'd. (May 17th); temp. Sec. Lieut. R. C. Bryant, R. W. Surr. R., and to be transf'd. to the Gen. List; Sec. Lieut. (on prob.) V. L. Anderson, Arg. and Suth'd. Highrs., S.R., and to be sec'd.; G. H. Armstrong, R. M. W. Browne, H. B. Prior (May 18th).

From Flying Officers (Observers).—Capt. A. A. Walser, Lond. R., T.F. (April 26th); temp. Sec. Lieut. J. McArthur, Gen. List; Lieut. G. C. de Dombasle, R. Canadian R.; Sec. Lieut. T. Henderson, Tyne Elect. Engrs., T.F. (May 16th).

Asst. Equipment Officers.—Sec. Lieut. A. N. Patterson, Spec. Res. (Jan. 20th); Sec. Lieut. E. D. L. Davies, Spec. Res. (Feb. 14th); Sec. Lieut. A. T. Thompson, Spec. Res. (Feb. 15th); temp. Hon. Lieut. R. Watson, A.S.C., and to be transf'd. to the Gen. List as temp. Lieut. (Feb. 18th); Sec. Lieut. C. R. Fry, Spec. Res. (Feb. 21st); Sec. Lieut. H. L. Saunders, Spec. Res. (Feb. 29th); temp. Sec. Lieut. W. J. Cooper, Gen. List (March 30th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lieuts. (on prob.) confirmed in rank:—M. R. N. Jennings, W. O. Crowe, R. S. Carroll, A. R. Thomas, W. R. Snow; T. C. Thrupp to be Sec. Lieut. (May 20th); C. G. H. Winter to be Sec. Lieut. (on prob.) (May 27th).

* * *

From the "London Gazette" Supplement, June 8th, 1916.

WAR OFFICE, June 8th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flying

Officers.—Sec. Lieut. G. H. B. Streatfeild, Durh. L.I., Spec. Res., and to be sec'd. (May 6th); temp. Sec. Lieut. C. E. W. Foster, Gen. List (May 16th); temp. Sec. Lieut. H. Meintjes, Gen. List, Sec. Lieut. G. L. Faulkner, S.R., Sec. Lieut. D. G. B. Jardine, High. L.I., and to be sec'd., Sec. Lieut. C. St. G. Campbell, S.R., Sec. Lieut. L. G. Wood, Devon R., and to be sec'd. (May 17th); Sec. Lieut. H. G. Mönks, I.A. Res. of Off., Sec. Lieut. W. O. Crowe, S.R., Sec. Lieut. W. R. Snow, S.R., Sec. Lieut. B. D. Frost, Essx. R., and to be sec'd. (May 18th); Capt. R. H. Freeman, Worc. R., S.R., and to be sec'd., temp. Sec. Lieut. H. T. Horsfield, attd. Worc. R., and to be transf'd. to Gen. List; temp. Sec. Lieut. R. S. Haward, Midd'x. R., and to be transf'd. to Gen. List; temp. Sec. Lieut. G. K. Palmer, E. Surr. R., and to be transf'd. to Gen. List; temp. Sec. Lieut. W. Sowrey, R. Berks R., and to be transf'd. to Gen. List; temp. Sec. Lieut. E. J. L. W. Gilchrist, Res. Regts. of Cav., and to be transf'd. to Gen. List; temp. Lieut. K. S. Henderson, Gen. List; Sec. Lieut. F. L. J. Shirley, York R., and to be sec'd.; Sec. Lieut. M. H. Turner, Dorset R., S.R., and to be sec'd. (May 19th); temp. Sec. Lieut. F. S. Moller, R. Fus., and to be transf'd. to Gen. List; temp. Sec. Lieut. E. R. Atkinson, Glouc. R., and to be transf'd. to Gen. List; Sec. Lieut. M. R. N. Jennings, S.R. (May 20th); from Flying Offrs. (Observers).—Temp. Sec. Lieut. K. F. Balmain, Gen. List (May 6th); Lieut. J. S. B. MacPherson, Canadian Art. (May 19th).

MEMORANDA.—Maj. G. M. Griffith, R.A., to be temp. Lieut.-Col. whilst empld. as Asst. Dir. of Aeronautics in India (April 30th).

Sec. Lieuts. to be temp. Lieuts. whilst serving with R.F.C.:—A. Lees, R. W. Kent R., L. H. T. Sloan, Camn. Highrs., P. F. J. Kent, 3rd D.G., F. M. I. Watts, Worc. R., J. M. J. Kermy, A.S.C., W. L. Mills, R.F.A., R. R. Money, E. Yorks R., G. F. Knight, Devon R., Spec. Res., J. W. Halcrow, Dorset R., Spec. Res., T. F. Lucas, R. War. R., Spec. Res., D. G. Prentice, Worc. R., Spec. Res. (on prob.) G. W. Robarts, R.F.A., Spec. Res., C. A. Pelham, 11th Hrs., Spec. Res. (May 1st).

L.-Cpl. K. G. F. Collender, from R.A.M.C., T.F., to be temp. Sec. Lieut. for duty with the R.F.C. (April 3rd) (subs. for notification of May 22nd).

TERRITORIAL FORCE.—ROYAL ENGINEERS.—LOND. DIV. ENGRS.—Sec. Lieut. C. F. Linton is sec'd. for duty with R.F.C. (April 15th).

* * *

From the "London Gazette," June 9th, 1916.

ADMIRALTY, June 2nd.

ROYAL NAVAL AIR SERVICE.—To be temp. Flt. Sub-Lt.—R. H. Nicholson (July 19th, 1915).

WAR OFFICE, June 9, 1916.

REGULAR FORCES.—MEMORANDUM.—Capt. C. D. M. Campbell, R.F.C., Spec. Res., to be temp. Maj. (without pay or allowances of that rank) whilst specially empld. (May 18th) (substd. for notification of June 3rd).

To be temp. Sec. Lt.—Flt.-Sgt. G. F. F. Collender, from R.F.C. for duty with Mil. Wing of that Corps (May 19th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Lt. G. de Havilland to be Capt. (April 30th). The follg. Sec. Lts. (on prob.) are confirmed in their rank: L. I. T. Hewer, J. W. James, H. F. Fisher, J. A. Brown, the Hon. M. Greville.

TERRITORIAL FORCE.—YEOMANRY.—R. E. KENT.—Sec. Lt. (temp. Lt.) J. A. Williamson seconded for duty with R.F.C. (April 28th).

ROYAL FIELD ARTILLERY.—W. LANCs. DIV. AMM. COL.—Sec. Lt. (temp. Lt.) D. C. Beck is seconded for duty with R.F.C. (April 28th).

INFANTRY.—NORTH'N R.—Sec. Lt. (temp. Lt.) H. G. Thornton is sec'd. for duty with R.F.C. (April 1st); Sec. Lts. to be temp. Lts.: C. C. Shaw, S. R. Hilton (April 15th).

MIDDx. R.—Sec. Lt. O. H. Frost is seconded for duty as Assistant Equipment Officer, R.F.C. (Dec. 22nd).

CAMERON HIGHRS.—Sec. Lt. T. Davidson is sec'd. for duty with R.F.C. (May 16th).

HUNTS CYCLIST BN.—Sec. Lt. P. W. Spurr is seconded for duty with R.F.C. (April 1st).

* * *

From the "London Gazette" Supplement, June 10th, 1916.

WAR OFFICE, June 10th.

REGULAR FORCES.—COMMANDS AND STAFF.—Asst. to a Dept. Asst. Dir.—(Graded for pay as a Staff Capt.)—Qr.-Mr. and Hon. Lt. W. J. Ryan, R.F.C., and to be temp. Capt. whilst so empld. (May 8th).

ESTABLISHMENTS.—R.F.C.—Flight Comdrs.—Lt. C. G. Davidson, Can. Local Forces, from a Flying Offr., and to be temp. Capt. whilst so empld. (May 27th); Lt. C. H. Stringer, 5th Lrs., from a Balloon Offr., and to be temp. Capt. whilst so empld. (May 29th); Capt. S. Grant-Dalton, York. R., from a Flying Offr.; Sec. Lt. E. H. Colman, S.R., from a Flying Offr., and to be temp. Capt. whilst so empld. (June 1st).

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Equipmt. Offr.—Lt. H. MacD. O'Malley, S.R., and to be temp. Capt. whilst so emp'd., from March 20th to April 30th.

Flying Offrs.—Temp. Sec. Lt. L. E. Brown, Gen. List (March 23rd); Temp. Sec. Lt. F. T. Courtney, Gen. List (March 28th); Temp. Lt. G. H. Walker, Army Cyclist Corps, and to be transf'd. to Gen. List; Temp. Sec. Lt. J. A. Simpson, R. Highrs., and to be transf'd. to Gen. List (May 15th); Capt. H. Colmore, 7th Hrs., and to remain sec'd. (May 23rd); Capt. H. J. F. Hunter, Rif. Brig., from a Serv. Bn., and to be sec'd. (May 24th); Lt. T. E. Lander, High. L.L., S.R., and to be sec'd. (May 25th).

Flying Offrs. (Observers).—Sec. Lt. M. G. Begg, Rif. Brig., S.R., and to be sec'd.; Sec. Lt. T. E. G. Scaife, 6th D.G., and to be sec'd. (May 25th).

Balloon Offrs.—Sec. Lt. (on prob.) N. M. Hoskins, N. Staffs R., S.R., and to be sec'd.; Sec. Lt. C. F. Linton, R.E., T.F. (April 15th); Capt. L. S. B. Hull, R. W. Surr. R., T.F.; Sec. Lt. J. E. Burt, Midd'x. R., Spec. Res., from a Garr. Bn., Norf. R., and to be sec'd.; Sec. Lieut. (on prob.) C. W. Hayne, Essex R., R.S., and to be sec'd.; Temp. Sec. Lt. W. S. Huxley, R. Fus., and to be transf'd. to Gen. List; Temp. Sec. Lt. L. R. Fletcher, Gen. List (April 25th); Capt. G. Disney, Essex R., from Adj't., Essex R., T.F., and to remain sec'd. (May 4th); Sec. Lt. W. Brass, Surr. Yeo., T.F., from a Flying Offr.; Sec. Lt. C. St. G. Lyster-Smythe, E. Surr. R., and to be sec'd.; Temp. Sec. Lt. E. N. Hewitt, Lan. Fus., and to be transf'd. to Gen. List (May 15th).

Asst. Equipt. Offr.—Sec. Lt. F. A. Harper, Spec. Res. (May 25th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lieut. O. C. Morison relinquishes his commn. on re-appointment to the R.N.V.R. (May 11th). Sec. Lieuts. (on prob.) relinquish commns.:—W. E. McCoy (May 24th); T. Hawkins (June 1st); A. H. Chapman to be Sec. Lieut. (May 25th). Sec. Lieuts. (on prob.) are confirmed in rank:—A. N. Buchanan, D. W. S. Paterson, P. C. Garratt, A. Gordon-Bond, J. L. Horridge, L. C. Angstrom, W. B. Sherwood, P. F. W. Bush, G. R. McCubbin, D. R. Stitt, F. A. Harper. To be Sec. Lieuts. (on prob.):—D. Drover (May 10th); R. H. Whittington, D. MacK. P. Riach, G. R. Nicholson, H. Rigby, F. J. Game (May 11th); T. McI. Mackay, F. E. Bray, J. J. Botterill (May 12th); S. H. Hawes (May 13th); I. N. Dracopoli (May 15th); H. G. H. MacSwiney (May 18th); C. H. Collins (May 23rd); C. J. Pender, C. H. Stokes, S. Douglas, T. M. Coates, E. F. Nash, E. Jacot, D. McC. Kerr, S. Hay, H. C. Short, J. E. Arnott, A. J. Winstanley, W. A. M. Niven, R. P. C. Freemantle, W. J. D. Vince, G. T. R. Hill, A. C. Reeves, W. C. Fenwick (June 3rd).

TERRITORIAL FORCE.—R.F.A.—WELSH (How.) BDE.—Sec. Lieut. F. Fernighough is granted temp. rank of Lieut. while emp'd. with R.F.C. (May 1st).

INFANTRY.—MIDD. R.—Sec. Lieut. G. R. G. Byham to be temp. Lieut. (August 1st); Sec. Lieut. (temp. Lieut.) O. Stewart (attd. to a Prov. Bn.) sec'd. for duty with R.F.C. (May 24th).

LOND. R.—Sec. Lieut. R. H. Soundy is sec'd. for duty with R.F.C. (May 15th); Sec. Lieut. T. J. C. Martyn sec'd. for duty with R.F.C. (May 15th).

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From the "London Gazette" Supplement, June 12th, 1916.

WAR OFFICE, June 12th.

REGULAR FORCES. — ESTABLISHMENTS. — R.F.C.—Flight Comdrs.—From Flying Officers.—Capt. G. de Havilland, S.R. (April 30th); Capt. H. Colmore, 7th Hrs. (May 24th).

Flying Officers.—Lieut. B. M. Hay, Canadian Engrs., Lieut. W. P. A. Ascroft, Australian F.C. (May 16th); Lieut. L. T. N. Gould, R.A., from an Observer (May 19th); Capt. M. G. B. Copeman, Leic. R., and to be sec'd., Lieut. I. M. Matheson, Sea. Highrs., Spec. Res., and to be sec'd., Sec. Lieut. W. E. Birch, S. Lan. R., T.F., Sec. Lieut. A. R. L. Godson, Lond. R., T.F., from an Observer; Sec. Lieut. J. Gibson, Devon R., T.F.; temp. Sec. Lieut. N. F. D. Buckridge, K.R. Rif. Corps, and to be transf'd. to Gen. List; Sec. Lieut. L. I. T. Hewer, Spec. Res.; Sec. Lieut. A. Gordon-Bond, Spec. Res.; Sec. Lieut. J. L. Horridge, Spec. Res.; temp. Sec. Lieut. L. C. Fawcner, Gen. List; Sec. Lieut. W. B. Sherwood, Spec. Res.; Sec. Lieut. G. R. McCubbin, Spec. Res.; temp. Sec. Lieut. K. K. Turner, Gen. List; Sec. Lieut. J. W. James, Spec. Res.; Sec. Lieut. J. A. Brown, Spec. Res.; Sec. Lieut. H. F. Fisher, Spec. Res.; Sec. Lieut. the Hon. M. Greville, Spec. Res. (May 20th); temp. Lieut. L. E. Whitehead, K.R. Rif. C., and to be transf'd. to the Gen. List; Lieut. A. W. L. Ellis, Australian F.C.; Sec. Lieut. E. P. Roberts, R. Suss. R., and to remain sec'd.; Sec. Lieut. P. F. W. Bush, Spec. Res. (May 21st); Capt. Lord* A. R. Innes-Ker, D.S.O., R. H. Gds., and to be sec'd. (May 24th). Surname of Sec. Lieut. J. G. McEwan, Spec. Res., is as now described, and not as in "Gazettes" of June 4th, 1915, and August 10th.

Asst. Equipment Officers.—Sec. Lieut. T. C. Thrupp, Spec. Res. (May 20th); Sec. Lieut. A. H. Chapman, Spec. Res. (May 25th); temp. Sec. Lieut. K. G. F. Collender, Gen. List; Sec. Lieut. A. N. Buchanan, Spec. Res.; Sec. Lieut. D. R. Stitt, Spec. Res. (May 29th).

MEMORANDA.—Temp. Lieut. S. Stretton, from R. Mar. to be temp. Lieut. on the Gen. List for duty with R.F.C. (March 16th).

To be temp. Sec. Lieuts.:—Gnr. J. K. Mountain, from Australian Fd. Art., for duty with R.F.C. (May 15th).

Flight Sgt. G. F. Drudge, from R.F.C., for duty with Mil. Wing of that Corps (May 28th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—The following Sec. Lieuts. (on prob.) relinquish their commns.:—R. W. Catto, H. G. Smith, G. P. Ham, J. L. Dashwood (May 24th).

TERRITORIAL FORCE.—INFANTRY.—NORF. R.—Capt. R. H. D. Lee and Lieut. R. P. Harvey are sec'd. for duty with R.F.C. (May 24th).

DEVON R.—Sec. Lieut. J. Gibson is sec'd. for duty with R.F.C. (May 20th).

S. LAN. R.—Sec. Lieut. W. E. Birch is seconded for duty with R.F.C. (May 20th).

* * *

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, June 7th.

The following officers had the honour of being received by His Majesty, when the King conferred upon them the Military Cross: Captain GEORGE HENDERSON, R.F.C.

Lieut. ALFRED EVANS, R.F.C.

Second Lieut. SIDNEY COWAN, R.F.C.

Second Lieut. DAVID TIDMARSH, Royal Irish Regiment and R.F.C.

* * *

NAVAL.

The following appointments have been made in the Royal Naval Air Service:—

JUNE 7th.—Temp. Sub-Lieut. (R.N.V.R.).—H. W. Caperer, to "President," addl., for R.N.A.S. (June 5th).

Flight Cmmr.—T. D. Mackie, promoted to Act. Squad. Comm., seny. of June 3rd.

Flight Lieut.—J. J. Petre, promoted to Act. Flight Cmmr., seny. of June 3rd.

Chief Petty Officer (Mechanic).—J. Sutherland, promoted to Wnt. Officer (2nd Grade), seny. of June 3rd.

Temp. commissions as Lieut. (R.N.V.R.), seny. as follows:—F. H. May, A. P. A. Larking, and W. Wright (all June 5th); and the Hon. W. T. Whiteley (June 4th).

JUNE 8th.—The following have been entered as Proby. Flight Sub-Lieuts. (temp.), and apptd. to "President," addl., for R.N.A.S., seny. of June 11th:—R. Birks, G. M. Part, R. G. Begg, A. C. Corbett, H. Lawson, C. Bumphrey, J. W. Chuter, H. Glaisycr, P. Brend, and R. P. Minifie.

Mr. R. B. Freeland, entered as Proby. Flight Sub-Lieut. (temp.), seny. of May 25th, and apptd. to "President," for R.N.A.S.

JUNE 10th.—Temp. Sub-Lieut. (R.N.V.R.).—R. K. J. Vallings, entered as Proby. Flight Sub-Lieut., seny. of June 8th, and appointed to "President," for R.N.A.S.

Petty Officers Mech. (R.N.V.R.).—E. D. H. Robinson and W. J. McAlister, both promoted to Temp. Sub-Lieuts. (R.N.V.R.), seny. of June 7th, and appointed to "President," for R.N.A.S.

The following have been granted temporary commissions as Sub-Lieuts. (R.N.V.R.), seny. of June 8th, and all appointed to "President," for R.N.A.S.:—A. F. Wilson (Proby. Flight Sub-Lieut., temp.), A. Thubra-Hardern, J. H. Dunn, W. O. Pearce, E. H. Watson, and C. H. Dennison.

* * *

THE CASUALTY LIST.

Reported June 7th.
DIED.—Flight Sub-Lieut. Leonard W. Hodges, R.N.

Reported June 12th.
DROWNED, June 9th.—Dickinson, Flight Lieutenant Cecil W., R.N.

WOUNDED, June 1st. Daly, Flight Sub-Lieutenant Ivan de B., R.N.

Reported June 13th.
DROWNED.—May 21st.—Viney, Flight-Lieutenant Taunton E., D.S.O., R.N.

ACCIDENTALLY KILLED.—June 10th.—Williams, Flight Sub-Lieutenant George K., R.N.

* * *

Flight Sub-Lieut. Cecil Roy Terraneau, R.N., whose death on April 29th was announced last week, joined the London Rifle Brigade on the declaration of war. In May, 1915, he was given his commission as flight sub-lieutenant, R.N., and took his certificate at Upavon, Wilts, in November last. He was immediately ordered for foreign service, and was killed while on an aeroplane reconnaissance.

* * *

Flight Lieut. Leonard W. Hodges, reported died, was 24 years of age, and did his training at Windermere, and took his certificate at Hendon. He was first attached to Calshot, and in December last proceeded to Basra, where he did good work. In April he commanded the R.N.A.S. detachment at Basra, and was holding this appointment at the time of his death. He married a daughter of Mr. and Mrs. W. Hedges, of Camberley, and leaves a widow and child. He had seniority of May 12th, 1915.

* * *

VINEY.—Shot down in air raid, on May 21st, Flight Lieut. Taunton Elliott Viney, D.S.O., R.N., younger son of Arthur Elliott

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Viney and Mrs. Viney, of Johannesburg, and Bratton, Frinton-on-Sea, aged 24. (S. African papers, please copy.)

Flight-Lieut. Viney was killed during an air raid on Ostend. He was educated at Grahamstown and at Mill Hill. He returned to South Africa at the beginning of the war and enlisted as a private in Prince Alfred's Guards, but after six months again came to England and received a commission in the R.N. Armoured Car Section. Soon afterwards he transferred to the R.N.A.S., and quickly gained his pilot's certificate. On November 28th, 1915, when accompanied by Lieutenant-en-second Sinçay as observer, he destroyed a German submarine off the Belgian coast by bombs dropped from an aeroplane. For this service he was awarded the D.S.O. on January 1st last, and was promoted flight-lieutenant.

He had seniority of January 1st, 1916.

Flight Sub-Lieut. George K. Williams, R.N. (accidentally killed on June 10th), had seniority of September 3rd, 1915.

A marriage has been arranged, and will take place at St. James's, Paddington, on Saturday, June 24th, at 10.30, between Neil Kensington Adam, Fellow of Trinity College, Cambridge, chemist, R.N.A.S., son of the late Dr. James Adam, of Emmanuel College, Cambridge, and of Mrs. Adam, 21, Barton-road, Cambridge, and Winifred, daughter of the late Mr. Samuel Wright, of Bradford, Yorks, and step-daughter of Mrs. Wright, 52, Pembroke-crescent, Hove. All friends will be welcome at the church.

Erectors, constructional fitters, scaffolders, bricklayers, and sheeters are required at once for the R.N.A.S. for the duration of the war. They will be rated as air mechanics with pay up to 4s. a day, in addition to uniform and separation allowances.

Applications, with testimonials, either personally or by letter, should be made to the Recruiting Offices, R.N.A.S., Brook Green, Hammersmith, W.

MILITARY.

G.H.Q. COMMUNIQUÉS.

JUNE 7th, 10.20 p.m.—Yesterday, owing mainly to the inclement weather, there is nothing to report about operations in the air.

JUNE 9th, 11.5 p.m.—Yesterday, in the air, under better weather conditions, a large amount of successful work was carried out. A considerable number of hostile aircraft was seen, but there are no combats to report, and our machines carried out their duties with practically no interference.

JUNE 10th, 10.47 p.m.—The enemy sprang two mines south of the Vierstratt-Wytschaete road. . . Following these explosions, hostile aeroplanes dropped bombs ineffectively on to our trenches.

JUNE 11th, 10.2 p.m.—A Fokker was driven down and crashed in a field near Habourdin.

The Secretary of the War Office made the following announcement on June 13th concerning operations in Eastern Egypt:—

The General Officer Commanding-in-Chief in Egypt reports that hostile aeroplanes attacked Kantara with bombs and Romani with machine-gun fire on June 11th, but were driven off by our aircraft. A few minor casualties were caused at Kantara, but none at Romani.

THE CASUALTY LIST.

Reported June 7th.

KILLED.—Powell, Sec. Lieut. L. C., R. Scots Fus., attd. R.F.C.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Glover, Sec. Lieut. B. E., Royal Flying Corps.

Grune, Lieut. G. D. G., R. Field Artillery and R.F.C.

MISSING.—Cairnduff, Sec. Lieut. A., R. Munster Fus. and R.F.C.

Maxwell, Sec. Lieut. G., R.F.C.

Reported June 8th.

DIED OF WOUNDS.—Steenekamp, Sec. Lieut. P. A., Dragoon Gds., attd. R.F.C.

WOUNDED.—R.F.C.—Hillman, 7766 2nd Cl. Air Mech. A.

Reported June 8th.

PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONERS OF WAR.—Brown, Sec. Lieut. W. A. S., Argyll and Sutherland Highrs. and R.F.C.

Mortimer-Phelan, Lieut. W. C., R.F.C.

Reported June 10th.

MISSING.—Goodson, Sec. Lieut. A. R. L., London Regt. and R.F.C.

CORRECTION.—OFFICER MISSING.—Maxwell, Sec. Lieut. G., R.F.C. (reported missing), should read:—Maxwell, Sec. Lieut. G. E., R.F.C.

PRISONER OF WAR.—R.F.C.—Donald, 3022, Col. T. (Dunfermline).

Reported June 13th.

WOUNDED.—Colman, Sec. Lieut. E. H., R.F.C.

Captain Lancelot Prickett, R.G.A. and Royal Flying Corps, whose death was recorded last week, was killed in a flying acci-

dent at Netheravon on June 2nd. He joined the Royal Artillery in July, 1909, and was gazetted captain in July, 1915.

Second Lieut. E. D. Le Sauvage, whose death was recorded last week, was educated at the Victoria College School, Jersey, Hillside, Godalming, and afterwards at Charterhouse. He left Charterhouse a few days before the outbreak of war, and after passing through Sandhurst was gazetted in November as second lieutenant in the Dorset Regiment. He went to the front in December, 1914, and was wounded at Hill 60 on April 22nd, 1915. For his services in France he was mentioned in despatches. After a few months' leave he obtained a transfer to the Royal Flying Corps, and was recently made an instructor at the Central Flying School.

Second Lieut. L. C. Powell, Royal Scots Fusiliers, attached R.F.C., was gazetted second lieut. in the Royal Scots Fusiliers in January, 1915.

Second Lieut. B. E. Glover, R.F.C., received his commission in January, 1916.

Lieut. G. D. G. Grune, R.F.A. and R.F.C., received his commission in the R.F.A. in October, 1914, and was gazetted to the R.F.C. in September of last year.

Lieut. Turner, R.F.C., was killed on June 9th in South Gloucestershire. He was returning from a flight when the machine dropped to the ground from a height of about 100ft. The machine was wrecked and the aviator died shortly afterwards.

A verdict of "Accidental death" was returned at an inquest at Bristol on June 10th on the body of Lieutenant Frank Dudley Evans, R.F.C., son of Mr. Albert Dudley Evans, secretary to the Birmingham Exchange, who was killed while flying near Bristol on the previous day. Engine trouble caused the machine to stall, and through the loss of speed it crashed to the ground. Mr. Evans's skull was fractured.

BUCHANAN.—On June 7th, at Tidworth Military Hospital, of injuries received in a flying accident on June 2nd, W. Archibald Buchanan, Lieut., Connaught Rangers, attached Royal Flying Corps, eldest son of Arch. Buchanan, of Auckland, N.Z., in his 22nd year. (New Zealand papers, please copy.)

[Mr. Buchanan's accident was that in which Capt. Prickett was killed.]

RIPPON.—Killed on the 9th inst., Gilbert Harold Earle, Second Lieut., R.F.C., formerly Rubber Planter, Lanadron, Malay Peninsula, third son of the late Frederick Rippon, Esq., Lincolnshire, aged 29.

Lieut. G. H. Rippon was killed on June 9th while flying. At the inquest it was stated that the officer had only been in the air three minutes when he made two sharp turns, as though to get back to the aerodrome. The machine got out of control and fell to the ground, the pilot being killed instantaneously. Another report states that the machine apparently collapsed in the air. A verdict of "Accidental death" was returned.

An engagement is announced between Edward Charles Colman, second lieut., Wiltshire Regiment, and R.F.C., eldest son of Mr. and Mrs. Colman, of "The Inglenook," Kingston Hill, and Ena Heseltine, only daughter of the late Arthur Heseltine Little, of Southport, and Mrs. Herbert J. Hanson, and step-daughter of Mr. H. J. Hanson, of 176, Oakwood Court, Kensington.

MORTON.—HOTBLACK.—On June 3rd, at St. John's-sub-Castro, Lewes, by the Rev. Prebendary Poole, rector, Captain Alan Handfield Morton, R.F.A. and R.F.C., only son of Major and Mrs. P. F. Morton, of 15, Ashley Place, S.W., to Iris Mary, only daughter of Mr. and Mrs. F. M. Hotblack, of Boltons, Lewes.

EEMAN.—On June 5th, 1916, at 55, Belsize Park, London, N.W., to Sec. Lieut. L. E. Eeman, R.F.C., and Mrs. Eeman—a daughter. (Egyptian papers, please copy.)

CLEAVER.—On June 6th, at Haymans Green, West Derby, Liverpool, the wife of Major F. H. Cleaver, R.F.C., of Edgeworth, Horley—a son.

FRANCE.

It was reported from Paris on June 7th that a few days previously a young French aviator defeated and killed Herr Kandulski near Mülhausen. Herr Kandulski was the vanquisher of M. Pégoud.

GERMANY.

It is reported from Amsterdam that on May 2nd a captive balloon descended at Wevelghem, causing much local excitement. When the Germans rushed up they found that the balloon's car contained a straw doll with a letter in its hand and a passport for Kemmelberg, a prominent point behind Ypres. The village has been punished because too many curious people crowded up to look at the balloon.

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AUSTRIA.

OFFICIAL COMMUNIQUÉS.

JUNE 9th.—Our naval aviators dropped a number of bombs on the railway establishments at Portogruaro, Latisana, Pallau, the inner fort of Grado, and an enemy naval aeroplane station. Our land aviators dropped bombs on the railway stations at Schio (south of Arsiero) and Piovère (Garda).

JUNE 11th.—Our aviators dropped bombs on the station of Cividale (east of Udine).

JUNE 12th.—A squadron of naval aeroplanes last night bombarded the railway between San Donà and Mestre and the railway works at Mestre with good results. An engine-shed was hit several times.

Some bombs were also dropped on the arsenal of Venice. In spite of a heavy anti-aircraft fire all our aeroplanes returned.

ITALY.

OFFICIAL COMMUNIQUÉS.

JUNE 6th.—Enemy aviators threw bombs on Ala and Verona, wounding three persons and doing some damage.

JUNE 10th.—Enemy aeroplanes dropped bombs at various parts in the Venetian plain. The total result of the raids was seven wounded and some material damage. One of our squadrons of Caproni aeroplanes bombarded enemy camps and works at Dazzece and in the Assa and Astico Valleys. All the aeroplanes returned safely.

JUNE 11th.—Enemy aeroplanes dropped bombs on Fonzaso (about seven miles west of Feltre) without causing any casualties or material damage.

JUNE 12th.—Enemy aviators threw bombs on Vicenza, hitting the military hospital, and also on Thiene (north of Vicenza), Venice, and Mestre (near Venice), doing some slight damage.

* * *

The well-known civilian pilot Clement Maggiora, who held several world-records some years ago, made on Caproni monos, was the victim of a tree stump on landing a Nieuport in the dusk at Malpensa the other day. His injuries, chiefly to the head and eye, were very serious, according to my latest report. He is a most valuable tester, and has everyone's best wishes.

* * *

Contrary to all former experience, one of the big Capronis, in a sideslip from quite low, has made a victim: Corporal Bonfino, who, unable to extricate himself, was burnt to death in the flare-up of the petrol tank on the last day of the month. A real shortage of the volatile essence might not be altogether harmful if it attracted attention to less dangerous fuels.

* * *

Captain Chev. U. Mojares, mentioned in your last number, met his death on duty as he was about to return to the front on the 4th inst.—T. S. H.

BELGIUM.

It is reported from Amsterdam that a squadron of Allied aeroplanes dropped bombs recently on the Hoboken wharves at Antwerp, where pontoons are constructed, all being destroyed. All the aeroplanes returned without loss.

Belgian aviators also dropped bombs on guns which had just been transported from Germany to Menin. Several heavy guns were destroyed and eleven German gunners wounded.

GREECE.

It is reported from Salonika that on June 11th French aircraft bestowed a leisurely, undisturbed attention upon Fort Rupel and the surrounding camps without encountering opposition from a single enemy air machine.

The "Times" correspondent states that the Bulgarians complain of the failure of the German air service to defend them from the incessant showers of bombs dropped by the French, and bewail the fact that their inferiority in this branch of warfare is more marked on the Bulgarian frontier than on any other front.

The town of Xanthi (about 10 miles beyond the eastern Greek frontier) is stated to have been completely abandoned by the inhabitants owing to the successful air raids of the French.

AUSTRALIA.

The following appeared in the "Sydney Evening News" of May 5th:—

Writing to his father, Flight Lieutenant E. Henty gives the following description of a flight from Brooklands, and a blizzard into which he ran:—

"I have just come through the most ghastly experience a man could ever wish for. I started off from Brooklands to go to Gosport last night at 5 o'clock. I knew I was a fool, and that it was risky, as heavy snowstorms kept passing over, and a fresh one was just coming. However, I thought I'd be able to turn in time and race it and get in front. Before I knew where I was, I was fairly in a blizzard, and having no protection on this particular machine, I was absolutely blinded and gasping for breath. I tore along, however, swerving and diving in every direction, not having the slightest control over the machine, and expecting to crash to earth at any minute. As soon as I left the aerodrome they lost sight of me, although they could hear me. Later, however, as I got over a place called Pyford, I was nearer earth, and the inhabitants say it was the most awful sight they ever wit-

nessed. I looped the loop twice, went straight up vertically, then got into a nose dive for earth. How I got out of that on this machine I can't think. Then they tell me I ran in and out of the chimney-pots at a terrific speed. How I missed them they can't think. Then I decided to switch off and chance it. After switching off, my engine stopped altogether, and so, if there had been a house or forest under me, I would have had to crash into it. By some marvellous chance, however, just as I was on the ground, I saw a hedge in front of me, and just beyond that a beautiful field. How I landed safely I can't think, especially as I was side on to the wind. And how I am alive now is more than miraculous. I never prayed so hard in my life, but even then I never thought it possible for me to get down alive."

* * *

Mr. J. R. Duigan, elder son of Mr. and Mrs. J. C. Duigan, Ivanhoe, has been granted a commission in the Australian Flying Corps. Mr. Duigan, who is a Victorian, was the first pilot constructor in Australia, and built and flew his first machine in 1910. Some time later he went to England, and obtained his pilot's certificate at Brooklands.

[Mr. Duigan will be remembered as flying an Avro at Brooklands.—Ed.]

RHODESIA.

Colonel Raleigh Grey, M.L.C., writing regarding the position of the Rhodesian Aeroplane Fund, says: "We have been able to send as gifts from the people of Rhodesia £3,000 for the purchase of two aeroplanes for the use of the Royal Flying Corps. These gifts, sent through His Honour the Administrator, have been gratefully acknowledged by the Imperial Government. An amount of £1,370 is at the bank available for the purchase of the third Rhodesian aeroplane; £130 is therefore only required to complete this third gift. Rhodesia No. 1 has been in France for some time, and Rhodesia No. 2 is probably there now."

THE R.N.A.S. COMFORTS FUND.

The following extracts from letters received by Mrs. Sueter indicate the manner in which the work of the R.N.A.S. Comforts Fund is appreciated, both by the officers in the Service and by the men who actually receive the comforts.

A Squadron Commander, R.N., says:—

I am writing to express my gratitude and that of the men for the comforts you have so kindly sent them. These have just arrived and are being distributed as seems most suitable. It is very good of you to organise this fund, and I can assure you that the result is very much appreciated by the recipients. Another Squadron Commander serving abroad says:—

I am sorry that the magnificent parcel of comforts was not acknowledged earlier. They took some time to arrive (April 29th), but were none the less welcome, and the men desire me to express their warmest gratitude to you for them.

An Air Mechanic writes:—

I would very much like to thank you for your kindness in sending me out nice parcel of sea stockings. They were more than acceptable, and your kindness I, for one, shall not very readily forget. May God bless you in your work.

The mother of an Air Mechanic writes:—

As my son was one of the lucky recipients of the parcels of warm clothing you so kindly sent to the men of the R.N.A.S. for the winter, I think it my duty to write and thank you for your great kindness in providing them with such warm comforts. He has just brought it to my notice, and said how he should like to thank you personally himself. Again thanking you, with every good wish.

The letters above should prove to all readers the very real value of the R.N.A.S. Fund, and should bring a fresh supply of subscriptions to Mrs. Sueter, at "The Howe," Watlington, Oxon.

MILESTONES XXXIII.

The Sommer monoplane, with 50-h.p. Gnome, was a 1911-12 machine on which a good deal of cross-country flying was done. It followed fairly closely the Blériot and Borel types.

The Vendôme monoplane of 1912, also with 50-h.p. Gnome engine, was notable chiefly for its large wheels and jointed fuselage, which enabled the machine to be taken down for transport.

The Savary biplane took part in the French military trials of 1911. It had a four-cylinder Labor aviation motor. Notable features are the twin chain-driven propellers, the rudders placed between the main planes, and the broad wheel-base. The pilot sat so far back that he had an unobstructed view downwards, and was so far from the engine that he could see quite well almost directly ahead.

The Paulhan triplane, which also figured in the French military trials, was a development of the Paulhan folding biplane. It had a 76-h.p. Renault engine. For practical purposes the machine was a failure.

The R.E.P. biplane, with 60-h.p. R.E.P. engine, was a development of the famous R.E.P. monoplanes. Its spring chassis, with sliding joints, was an advance on the practice of that day. Like the monoplanes, it was built largely of steel.—W. L. W.



"FLYERS."

"Rilette's" paintings to the commission of H. Dennis Bradley visualise the lighter side of a drab war.

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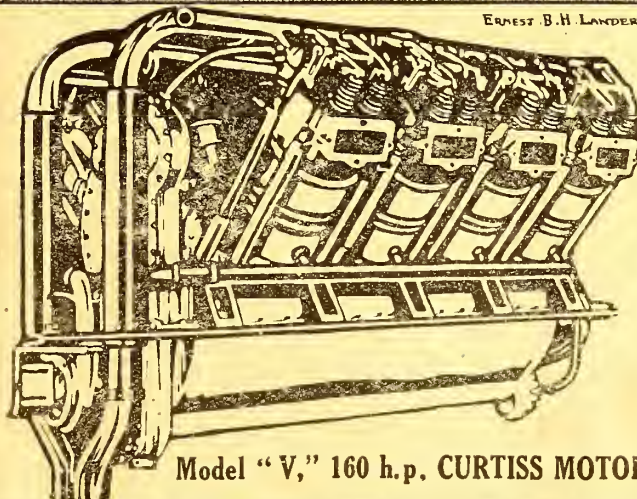
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IN MEMORY OF WILBUR WRIGHT.

On Tuesday, June 6th, the Fourth Wilbur Wright Memorial Lecture was delivered by Mr. Griffith Brewer in the Hall of the Royal Society of Arts at John Street, Adelphi, W. Lord Montagu of Beaulieu was in the chair.

After referring sympathetically to the death of Lord Kitchener, which had been announced officially that afternoon, Lord Montagu laid emphasis on the fact that most of the work of real value to mankind had been done outside official circles by private individuals, and that work of this character was nearly always opposed at its outset both by the pure scientists and by the heads of Government departments. The research undertaken by the Wright Brothers was a notable example of private enterprise.

Mr. Griffith Brewer explained that this would be an exception to the generally scientific character of the lecture, because the publication of the results of new research at the present time would not be wise, and he thought that it was an excellent opportunity of giving a somewhat detailed picture of the life and work of the Wright Brothers, about whom comparatively little was known by most of those interested in aviation in this country.

After describing the birth and boyhood of Wilbur and Orville Wright, who, as is generally known, were the sons of an American bishop, Mr. Brewer went on to relate how although they were keenly interested in the possibilities of human flight from childhood it was not until 1896, when Wilbur was 29, that they took to the problem seriously. The Wrights were never tired of praising the spade work of Otto Lilienthal and of James Stringfellow, one of the founder members of the Aeronautical Society, and they thoroughly reviewed the work of these pioneers before commencing to experiment themselves. After comparing the results of their preliminary experiments with what had been laid down in the text-books, and the data left by earlier experimenters, the Wrights discovered many inaccuracies in what had been regarded as axioms of the art of flight, and they therefore began a long series of laboratory experiments in order to establish for themselves the effect of air travel past aerocurves. They built a little wind tunnel in which thousands of tests with miniature curved planes were made, and the tabulated results compare favourably even at the present day with the elaborate tables prepared by learned institutions [At which no one need be surprised who knows the type of person who runs "learned institutions."—Ed.]

The famous experimental ground at Kitty Hawk was not selected so much for the secrecy it secured as for the fact that in the opinion of the Weather Bureau at Washington the North Carolina coast had the strongest and most constant winds [which probably accounts for the dryness of the Carolinas.—Ed.] and the experimenters were anxious to discover a site where the effect of wind on a full-sized glider could be determined with the least possible travel over the ground.

In the summer of 1900 the final arrangements were made to migrate to the deserted spot at Kitty Hawk, and the journey resembled something of a pilgrimage into an unknown country. The first trip from their home at Dayton to Kitty Hawk occupied nearly a week, but afterwards, when they knew the way better, the journey could be accomplished in three or four days. A tent was put up, and the first glider employed was erected from sections made at home. In the following years they built a shed for housing their machines and for living in. The enthusiasts had to construct this shed from a heap of timber and corrugated iron dumped down on the spot from a wagon, and in it for several years they shared the comforts and joys of a Robinson Crusoe existence.

The gliding experiments were carried out by launching the machine down one of the Kill Devil hills against the wind, the operator lying face downward on the bottom plane in order to reduce head resistance. The wing curves of the first glider were designed by the Wright Bros. on their own lines, or, as Orville put it, "by guess," but the data of lift, drift, resistance of struts and framework, etc., were taken from tables previously published by Lilienthal.

The work of practical experiment and theoretical design went



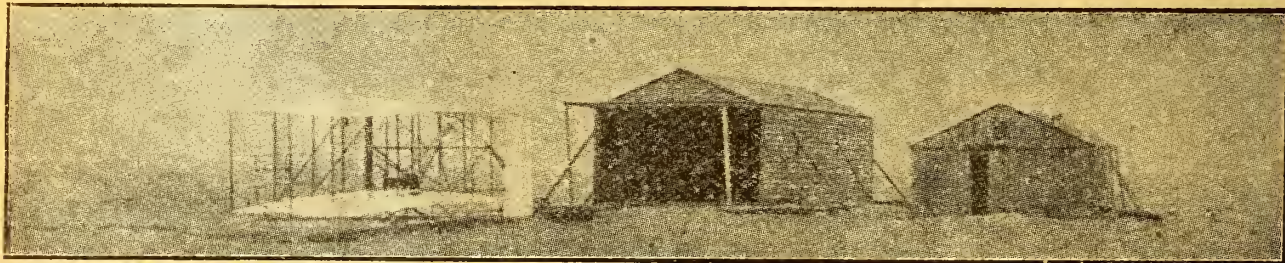
Wilbur Wright at 16.

on side by side, and an enormous amount of practical and theoretical knowledge was acquired. Of course the usual quota of smashes was experienced, but no one was very seriously injured, and by 1903 enough confidence had been acquired to encourage them to attempt flight on a power-driven machine, the engine being a 4-cylinder stationary motor of 12/16 h.p.

The initial experiments carried out with the first power machine are characteristic of the extraordinary affection the two brothers possessed for each other, and the anxiety they felt that the other should share the honours of discovery.

The machine was fitted up to a starting rail to assist it to acquire sufficient initial velocity owing to the absence of anything like a running chassis, but no mechanical launching device was employed. The brothers tossed up as to who should make the first attempt, and the lot fell to Wilbur. The engine was started up and the machine ran along the rail, but something jammed and the arrangement came to a standstill. Wilbur insisted on counting this abortive effort as a "turn," and Orville made the next attempt. The machine started off once more against a wind of 24 m.p.h. and left the ground, making a short flight and landing safely. This was on December 17th, 1903, and was, of course, the first power flight in the history of the world.

This success was followed by many others with the same machine, and the reports which crossed the Atlantic created the greatest controversy among scientific people in Europe. The French Aero Club was particularly sceptical about the accuracy of the reports, because in the light of experiments then being



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The Wright Brothers' sheds at Kitty Hawk with the first power-driven aeroplane.

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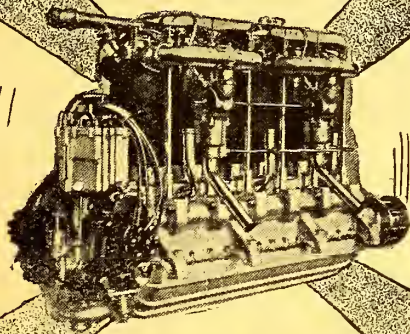
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made in France with engines of 40, 50 and 60 h.p. they could not conceive it possible for a man to leave the ground with a 12/16 h.p. motor. The photographs of the flights, the reports of independent eye-witnesses and the recognised integrity of the Wright Brothers does not leave the slightest ground for believing that any inaccuracy existed in the claims made.

The lecturer went on to relate that both Wilbur and Orville were never so well in health as when conducting their experiments in the open air, and that both looked upon the strenuous life of self-denial which the experiments entailed as something really in the nature of a holiday. The legal work, however, which under present patent laws is thrown on all successful inventors, proved a far heavier task, and rather than let this work fall below the usual standard of all his undertakings, Wilbur overtaxed his strength and reduced his vitality by overwork until he became an easy prey to his fatal illness.

In the opinion of Mr. Brewer the most fascinating portion of Wilbur Wright's work was during the first three years, when he approached the flying problem purely as a sport and recreation. Alone he could not have succeeded. Alone Orville would have failed. But their sporting instinct and boyish love of adventure gave each the energy and will to support his brother's efforts, neither striving to be first, both working to one end. The sport of gliding, with life in the open air, was the first attraction, then the interest derived from the series of wind-tunnel experiments during the winter between the outdoor sport, then the gradual combining of the sport with the science, when the determination of two master minds fought trial after trial, until at last they learnt the art of flight upon the steed of their own creation.

There was no question of a light power-plant being the key to flight, because the light power had been produced years before by Henson, Maxim, and by Langley, and the Wrights before they made their engine had learnt to fly and had built the machine to fly with. So certain is this view of the situation that during the winter after the end of the gliding experiments they designed and built their first power flying machine, and in the autumn of the following year they took it to their familiar sand hills and flew it at the very first attempt.

Several years after the first power-driven flights which resulted in the successful aeroplane, Orville Wright and Alec Ogilvie carried out some extraordinary experiments with gliders in 1911 in the light of the knowledge previously obtained with a view to seeing how far soaring flight on a glider was possible, and in the peculiar winds existing at Kitty Hawk flights of 10 minutes' duration were made, the machine remaining almost stationary in the air and merely supported by the upward trend of the air currents. But for the death of Wilbur Wright much might have come from the fruits of these later experiments.

THE REASON FOR SECRECY.

It has often been said that the Wrights made a mystery of their experiments and worked with great secrecy. This is wholly opposed to their real characters. They naturally desired to experiment quietly in an out of the way corner, because all who tried to fly were laughed at, and continual jeering is apt to detract from useful thought. Afterwards, when people recognised that their work was sane and possibly the greatest advance in science for a century or more, they were still obliged to seek seclusion in order to be able to work at all. Outside of work time, however, none have had their questions left unanswered, and those who knew Wilbur in France will remember his patience in giving information to all who sought it.

There was one aspect of the Wright Brothers' work Mr. Brewer regretted, an aspect which might have been averted had their work been recognised before it triumphed by sheer force of right. So long as it was merely a sport the Wrights had no thought of profit, but when they attacked the problem more seriously and gave up their livelihood to win through on that uphill fight they were obliged to do what all inventors do, and seek to make their invention provide the cost of its production.

America had already paid some public funds to find the road to flight. France had done the same with no more success to

show in return. The Wrights, working silently in the wilderness and relying entirely on their own resources, quietly emerged with a machine which could fly miles without mishap. Everyone cheered and welcomed the advent of the hope of ages.

It was not until people realised that the invention was expected to produce its reward to the inventors that men began to murmur, and then after one triumphant year in Europe and their return as conquering heroes to their own native land did we hear rumours of defiance and refusal to pay tribute for the use of the patent. A great industry came into being, giving employment to tens of thousands, but after the first year or so these new vehicles of transit ceased to pay royalties to the inventors. The invention was too big to pay in silence, and the law too ready to exploit the work of inventors.

It is therefore a matter of considerable satisfaction that the use of the aeroplane in Great Britain has not formed the subject of litigation between the inventors and the manufacturers. The country has had the full advantage of the invention without the restraining effect of threats. No licence has ever been refused under the British Wright Patents, and at the present time no impediment exists for the free use of the invention for manufacturers to make machines for the British Army or the Navy, which is, in fact, the only real market for aeroplanes in Great Britain.

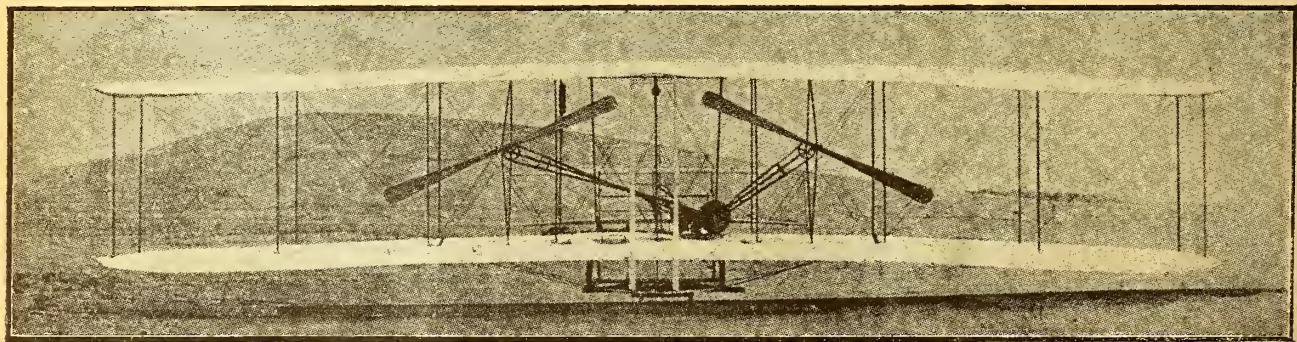
At the same time this free privilege of the British manufacturers, unique in its position amongst the great manufacturing nations, was not entirely a free gift. It was felt by the British supporters of the Wright Brothers that recognition of their pioneer work was necessary, if only to justify the patenting of the invention. That which costs nothing is generally worth nothing, and so it was necessary to draw the orthodox tribute.

The question how to do this with the least disturbance to the trade was carefully considered, and it was decided to apply to the Government for leave to sue a nominee of His Majesty for infringement. This permission was graciously accorded, and an action was brought for an infringement of the Wright patents. This action was commenced early in 1913 and the trial would have been heard in the autumn of 1914. Then the war came. A meeting of the Wright supporters in England unanimously agreed that however friendly the action against the Government was, they could not reasonably continue to fight the Government during such a time, and so offered to accept the smallest sum compatible with real recognition, viz., £15,000, for immediate settlement. This offer was promptly accepted, giving thereby official recognition of the validity of the Wrights' claim, and giving to the nation complete freedom to use, for its defence, the invention which enables it to hold its own in the air. Germany and Austria also use the invention, but they do so without the satisfaction of having paid for it.

In conclusion, Mr. Brewer said: "I have gone to this length in telling you the patent position in Great Britain, because so many rumours have appeared which would imply a lack of generosity on Wilbur's part, and I hope you will excuse this reference to the part I felt called upon to play after Wilbur was no longer here to play it. My endeavour has been to do what I believe he would have done, and I thank those who so well supported me with this object in view. Lord Northcliffe, who knew the history of this action, on hearing of the terms of settlement, wrote to me saying: 'I think that Wright has behaved more than generously—nobly, in fact'; and I think the British aeroplane industry, now they know what was done for them, will thoroughly endorse Lord Northcliffe's view of the Wrights' generosity towards this country."

A number of intensely interesting appendices to the lecture, including the evidence given by Wilbur Wright in the patent action in America, now published for the first time, were handed to those present at the lecture, which was illustrated by a number of very fine lantern slides.

Lord Montagu, in moving a vote of thanks to the lecturer, said that our wildest dreams in regard to the air in 1916 might become



By kind permission of the Aeronautical Society of Great Britain and Mr. Griffith Brewer.
The first power-driven aeroplane, rear view.

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facts in a few years. Both Services and the Government should realise that if they did not show energy and foresight in regard to the question it might lead to this country being no longer an island, and to our invasion by air, not by sea.

Lord Northcliffe, who seconded the motion, said:

"I take particular pleasure in coming here to-day and seconding the vote of thanks to Mr. Griffith Brewer, because I had the great honour of knowing not only the two Wright Brothers, but their sister Catherine. Mr. Brewer, who has been through all the great struggles of the Wright patents, was a devoted friend of those most modest inventors and knew them much more intimately than I did. Many of you will recall the fact that when they arrived in Europe very few believed that they were able to fly at all. Mr. Griffith Brewer will remember that great day when Wilbur, after all the great care he took in preparing his machine—after, I think, a fortnight of preparation—rose from the earth, and, to the immense astonishment of the French people gathered there, who had been waiting for days, rose in the air and disappeared.

"We are so accustomed to seeing flying machines nowadays that it is rather difficult to remember the enthusiasm, fascination, and excitement of seeing a man fly for the first time. I remember that first aeroplane. It was very rough, very simple. The motor was not only one of very small power, but, from the point of view of modern flying machines, very crude. The Wright Brothers, however, were not people who took very much interest in appearances. They knew that their machine could fly. They took no risks. Every part of that machine was perfectly made from the practical point of view. But, as in the case of many practical things one sees in the United States, there was no attempt at the finish one sees in the aeroplanes of to-day. The fact, however, remains that after more than a hundred years of experiment with aeroplanes these two brothers were the first two people in the world who made a machine to fly and flew it. I make that remark emphatically, because there is one aspect of the matter to which Mr. Griffith Brewer did not call attention, and that is the attempt of people to rob the Wright Brothers of the priority of this invention.

"We have heard very little of that in England, but a prophet is not without honour save in his own country, and in the United States there has been a long and persistent attempt to belittle the originality of Wilbur and Orville Wright. I have closely followed the history of the hundred years of aeroplane experiments, and I have the unswerving conviction that the credit of the first flying aeroplane is due to the Wright Brothers, and, from the point of practical flying, to nobody else. In selling their invention to Great Britain for £15,000, the Wright Brothers performed a great service to this country. I know that these words of mine will go across the Atlantic. I believe that they will assist in stopping the spread of the insidious suggestion that the Wrights

did not invent the aeroplane. One knows how public delusions grow up, and it requires such a lecture as Mr. Griffith Brewer's with those unanswerable photographs and his deep knowledge of the early days of the work to demonstrate and re-demonstrate to the world that Wilbur and Orville did this thing.

"The Wrights were Americans, not English people, but they were Americans of English descent. They had a great affection for this country, and their sister, in writing to me the other day, said: 'We here make no pretence of being neutral. We are heart and soul with England and her Allies in this great struggle.' That family showed their sympathy by taking a beggarly sum for one of the greatest inventions in the world. I am sure you will join with me in thanking Mr. Griffith Brewer for a most interesting lecture."

Major-General R. M. Ruck, in proposing a vote of Thanks to the chairman, congratulated Lord Montagu on his marvellous escape in the Mediterranean. They all recognised his conduct on that occasion as a sample of the vigour and extreme pluck which would help him in the present campaign he was now conducting—a campaign with which they greatly sympathised. They as a Society had always believed in the great future of flight, not only from a Naval and Military point of view, but also in its commercial aspect. He would like to thank Lord Northcliffe, on behalf of the Society, for the great interest he had always taken in the matter, and to say how glad they were to see him present. They had always recognised that he was one of the first and principal supporters of flight. Lord Montagu also might be considered one of the pioneers, because he had forecasted in the most accurate way many of the great events which had happened in flight during the present war. This showed that he possessed not only the necessary vigour and determination, but also the necessary imagination for tackling this extremely difficult subject of how best to organise our Flying Service in the way most adapted to defeat our enemy. They wished him every success.

Brigadier-General F. G. Stone seconded the motion.

Lord Montagu, in responding, expressed his satisfaction at seeing Lord Northcliffe present. He went to Les Mans to see Wright fly in October, 1908, and he saw, as everyone must who had a spark of imagination, the enormous possibility of flight. No one could tell to-day how far it might go. He was glad to hear good wishes for his campaign—which he would always try to carry out in a reasonable and proper manner—to wake up this country to the need of giving a great deal more attention than we were giving to-day to this subject. His desire was that both Services and the Government should realise that this was a matter which might, if we did not spend on it time, trouble, and energy, and exercise foresight, lead to this country being an island no longer, and to invasion by air instead of by sea.—W. L. W.

THE LATE FREDERICK WALKER.

The death of Mr. Frederick Walker at Cheltenham at the comparatively early age of 62 will recall to many of those with whom he was associated in the early 'eighties and since a noted personality in the engineering and electrical world. On the subject of aerostatics he displayed judgment and versatility far in advance of his time.

In the book published by him in 1910, "Aerial Navigation," his remarks, read in the light of recent events, may be considered almost prophetic. His friend, Mr. B. T. King, well known in connection with patents of all kinds, recalls that in the preface to this last book which he wrote Mr. Walker said:—

"The advent of the aeroplane as a medium for sport has commenced a new era of trade, and the exigencies of the preparations of foreign Powers for aerial war apparatus needs must stimulate our own Government to action in the same direction. But whatever is done in the matter of aerial navigation in the way of trade and inventive genius should be done by the British people themselves; I cannot believe that the race has deteriorated to such a degree that we should depend upon foreign invention and manufacture for what we need at home.

"There is no need, for ages to come, to fear a social revolution or the destruction of civilisation by the advance of aerial navigation. This could only be effected by the discovery and application of the neutralisation and regulation of the force of gravity. Given this as a secret under the control of a peaceful and highly civilised Power, and war and its concomitant horrors would be a story of the past.

"The true co-ordination of physical phenomena brings creative imagination to bear upon the dead side of the world turned from our limited senses, and causes us to comprehend the pulsations of Real Life beyond the screen of materialism.

"The attraction of gravitation up to the present time has not co-ordinated with other forces, and there may yet be a mode of applying known forces in aeronautics in this wide and all but untrodden field of research."

Another extract from this book goes on to say:—

"There is a great future before the aeroplane, and also before the airship, which is built as a rigid combination between the aerostat and the aeroplane. It is certain that with such an airship having controllable vertical movement, with fuel and pro-

vision for eight men for one month, no spot upon our planet may remain unexplored and uncharted. There is a supposed disadvantage in that a special space must be prepared for docking and replenishing such vast fabrics. But the same appertains to our huge ocean liners and Dreadnoughts, for no sane person would think of anchoring these off a lee shore or laying them up in an open roadstead for discharging or taking up goods.

"It is a sign that the progress of civilisation is but skin-deep, and the savage instincts of primitive man are dominant as when he whetted his paleolithic axe, since every discovery due to scientific research is at once turned to its use in warfare, and between its merits in that direction and the realms of sport must it stand or fall.

"It must be conceded, however, by the most pacific of teachers that it is well for every nation to prepare for defence, and without going so far as to entertain or encourage a possible 'war in the air,' a fleet of properly constructed airships is a necessary adjunct to a navy, more especially for that of a nation like Great Britain, with an insular centre, so dependent upon the command of the elements surrounding it."

The prophetic truth of these passages written so long ago is truly remarkable.

Born at Charlton, Kent, in 1853, Mr. Walker served an early apprenticeship of seven years as a millwright. His workshop training at Bryan Donkins, Easton and Anderson's, etc., and a ripened world-wide experience gained as a sea-going engineer in the P. and O. Service, peculiarly fitted him in later years for the profession of a consulting engineer and patent agent. He was employed, among other things, in first installing the electric light on the Suez Canal, the designing of the "Volta" (the first electric launch to cross the Channel) in conjunction with the late Anthony Reckenzaun, and was the patentee of the first dry battery in 1881 and closely identified with the "Jarman" electric road cars in 1880. He was also associated in the early beginnings of many well-known engineering and allied firms, and in particular with the late Gustav Binswanger in the inception of the G.E.C.

In his later days Mr. Walker for many years practised the profession of a consulting engineer and patent agent, until, through failing health, he retired into the country near Cheltenham, where he was much sought after by those who valued his mature knowledge gained by his practical experience and scientific mind.

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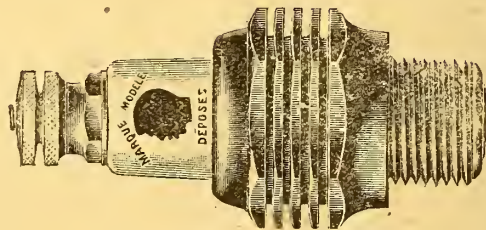
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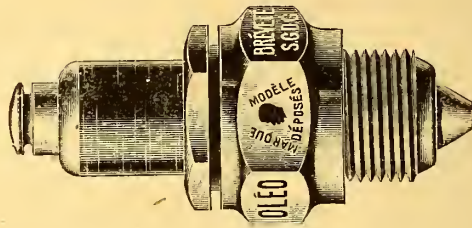
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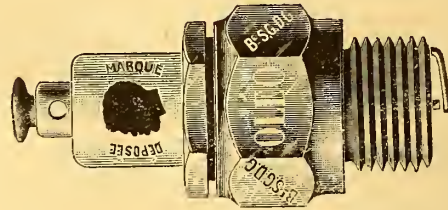
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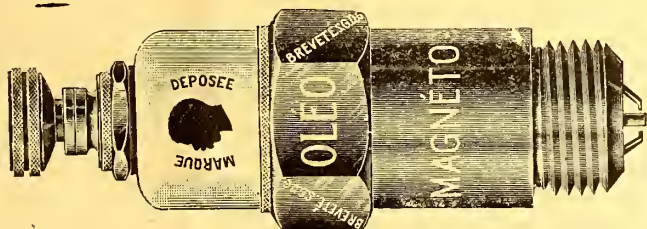


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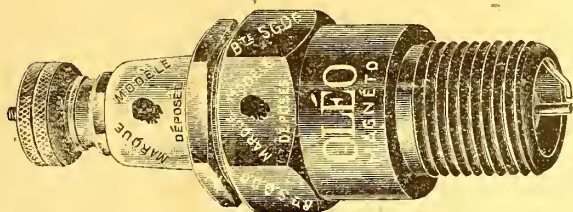


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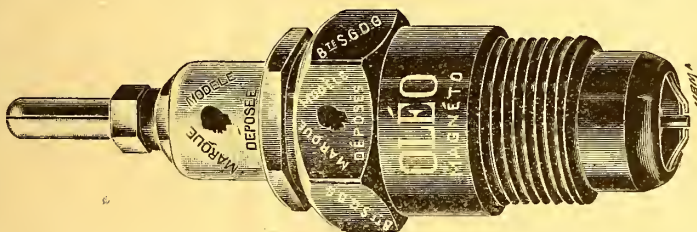
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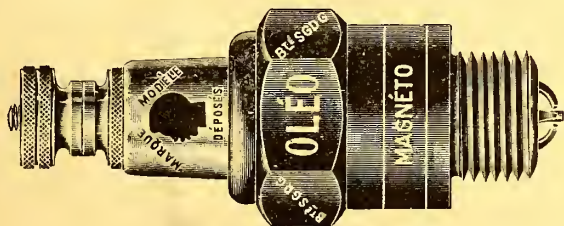
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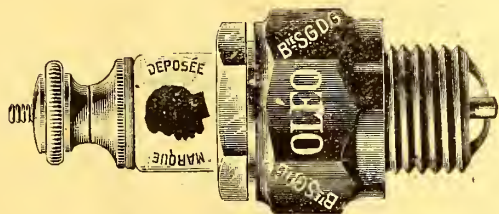
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CAR & MOTOR CYCLE.



4/6
No. 7



4/6
No. 6 D
American
Taper Thread.



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EIGHTEENTH CENTURY IDEAS ON FLYING.

A quaint volume was published in London in 1736. It bore the elegant title: "Spectacle de la Nature: or Nature Display'd, being Discourses on such Particulars of Natural History as were thought most Proper to Excite the Curiosity, and Form the Minds of Youth. Translated from the Original French by Mr. Humphreys."

It takes the form of a series of conversations between a Count and Countess, a Chevalier, and a Prior, and, as may be imagined from the date of the book, their ideas of Natural History are beautiful in their simplicity. Their observations on the possibility of human flight, however, are well worth preserving.

After a description of the manner in which a bird is constructed, and its method of flying, the Chevalier remarks: "Though I don't comprehend how Birds perform their flight, I am of opinion, it is not impracticable for Man to imitate them; and the Birds instruct him in the Method he ought to observe."

PRIOR: "Tis certain, that we have the Principle of Motion in our Legs and Arms; we likewise have, in the Feathers of Birds, and in our Linen Cloth and Oil, materials of a seeming fitness to form Wings, capable both of striking and impelling the Air, without being penetrated by it. The Birds supply us with a Model of the Action, and, at first View, it seems to be an Invention naturally presented to us, and which a small effort or a few Reflexions, would suffice to make us acquire in Perfection; but I believe God, in Consequence of His providential Care of Mankind, has opposed an insuperable Impediment in the Way; so that this Attempt, which has been frequently repeated, hath always proved unsuccessful. The Art of Flying, would be the greatest Calamity that could happen to Society. [This pessimism is not shared by present-day Aircraft contractors.—Ed.]

CHEVALIER: On the contrary, Sir, I should think this Invention would save us abundance of Labour. We should be sooner acquainted with what we are desirous of knowing; and if we had once found out a small Machine, could soon build a larger. [Most intelligent anticipation this.—Ed.] We should not only traverse the Air ourselves, but might likewise convey Cargoes of Merchandize through the Element.

PRIOR: You have a charming Penetration, Chevalier, and are the best in the World at guessing the Advantages we might receive from this Invention; but these Advantages would not countervail the Disorders that would be introduced.

COUNT: This is certain, that were Men capable of Flying, no Avenue could be inaccessible to Vengeance and inordinate Desires. The Habitations of Mankind would be so many Theatres of Murder and Robbery. What Precautions could we take against an Enemy, who would be capacitated to surprise us both by Day and Night? [Of course the Prior could not be expected to foresee the rise of the Anti-Aircraft Corps.—Ed.] How should we preserve our Money, our Furniture, and Fruits from the Avidity of a Sett of Plunderers, furnished with good Arms to force open our Houses, and as good Wings to carry off their Booty and elude our Pursuit? This sort of Trade would be the Refuge of every indigent and impious Person. [A nasty one, that, for piratically inclined aviators.—Ed.]

PRIOR: I may add to this, that the Art we are now mentioning would intirely change the Face of Nature; we should be compelled to abandon our Cities, and the Country, and to bury ourselves in subterraneous Caves [Which is exactly what will actually happen in the next war. The whole population will have to live in dug-outs.—Ed.], or imitate Eagles and other Birds of Prey; we should retire, like them, to inaccessible Rocks and craggy Mountains, from whence we should, from time to time, sally down upon the Fruits and Animals that accomodate our Necessities; and, from the Plain, we

should immediately, soar up to our Dens and Charnel Rooms.

COUNTESS: Ah! Gentlemen, you make me tremble at your Art of Flying; and I bestow, beforehand, my Imprecations on the Person, who shall attempt to make it practicable. Let me hear no more of Dens and Charnel Rooms. Do you see, Chevalier, what you expose us to with your Inventions?

COUNT: Make yourself easy on this Head. We need not be under any Apprehensions about the Art of Flying, which is indeed an absolute impossibility; Nature herself has formed an Obstacle against it, that is, in some Measure, made invincible, by the exceeding Disproportion between the Weight of the Air, and an human Body. The hollow Machine that one must imagine capable of sustaining the Body of a Man, and placing it in an equal Ballance with the Air, would be so immoderately large and cumbersome, that learned Men have judged the Management and Use of it to be altogether impracticable, and as much forbidden to Man as the perpetual Motion.

(This seems to suggest the existence even at that time of theoretical experts. Anyway, having thus effectually disposed of the subject of aviation, the intelligent conversationalists proceed to discuss other birds, including the "Ostridge, whose Eggs are as Big as an Infant's Head, and whose Feathers are placed as Ornaments on the Testers of Beds and on the Canopies of great Men, or used to add Heighth to the Stature of Tragedians; and the habits of the Ducks, which have flat Feet, or large Paws, accommodated with Films or Skins, which they extend in the Form of Fins, and with which they impel the Water one Way, that they may advance another." And so on.)—D. W. T.

THE MICRO-BEHAVIOUR OF AEROPLANE VARNISH.

WRITTEN AND ILLUSTRATED BY JAMES SCOTT.

The principal object in varnishing materials composing various structures is to preserve them against the operations of the weather, and so forth, besides general wear and tear. It is not simply to give a pleasing gloss to them. But if this effect can be obtained as a secondary result, so much the better.

Wood, for instance, very soon disintegrates if it is not protected against such decay; and by absorbing moisture meantime becomes swollen and warped to such an extent as to interfere with the desirable working of the parts.

Unless, however, the varnish is specially adapted to its purpose, it may prove to be more of a nuisance than a benefit, and in some cases might turn out actually dangerous.

Varnishes are broadly divided into two kinds—namely, oil and spirit. The first frequently consists of what are known as drying oils, such as linseed, poppy, and walnut, which, when spread in thin films, absorb oxygen from the air, and by this oxidising thicken in consistence to impervious, intact, tough, adhesive, membranous layers.

The drying propensity may be accelerated by the oil having been previously boiled, or treated with chemical matters to increase the proportion of contained oxygen. Oil varnishes require a longer exposure than others before they become hard and firm.

The second group are made by dissolving resins, such as shellac, in methylated spirit, or else in alcohol, which is better known as spirits of wine.

The setting of these varnishes after use depends on the rapid evaporation of the solvent, and consequent isolation of the resinous substance.

An intermediate class are those in which oils, resins, and spirits (the latter being chiefly "turps") are combined together, thereby producing a sort of hybrid varnish.

It is not my intention, of course, to deal with the

manufacture of varnishes; but it is necessary to give these brief details in order that the reader shall have some idea of the subject and its relation to the point of view I have adopted.

The selection of a varnish for application to aeroplane fabric demands far more care and discrimination than for ordinary purposes. It must be very flexible when dry, otherwise the strains and bendings to which it is exposed will crack and flake it.

It must resist wet and moisture, so that neither rain nor creeping vapours can percolate through it. It must be non-flammable; else the fumes, which might be quite invisible and nominally unnoticeable to the sense of smell, will be liable to ignite.

In addition to these main points are many others of a minor, yet still important, character, some of which will probably occur to the reader. For instance, casual scraping against objects, or by the aviators themselves when manipulating their structures, will chip off minute particles of a weak varnish, and enable the air and dampness to force their way beneath the remainder, and thus cause its complete spoliation.

The atmosphere, especially in the vicinity of towns, large factories in the country, mining areas, and so on, is often heavily laden with carbonaceous, sulphurous, and equally potent fumes, and these seriously affect the varnish.

The expansive power of freezing raindrops, hoar-frost crystals, and the excessive coldness of snow and ice which are likely to adhere to the machines in the winter have calculable effects on the varnish, which cannot rightly be said to be undeserving of close consideration, seeing that it is analogous to a tightly fitting suit of clothes, in so far that it is intended to be protective against exterior influences, and to conserve the pliability, strength, and integrity of the substances beneath it.

Excessive sunlight is capable of blistering an inferior varnish, thereby causing a great amount of trouble.

The vibration of a machine is also a factor to be reckoned with in this connection. A brittle varnish would be literally shivered to pieces by degrees.

The rapid rushing through the air must not be ignored, because it would undoubtedly exert a definite influence on the varnish. The mass of apparently trivial defects would be important.

Ordinary spirit varnishes are really unsuitable for aeroplanes, because (apart altogether from their flaky nature) there is locked up beneath them minute globules of the inflammable solvent, ready to ignite if the parts are overheated from any cause.

The best of varnishes will be spoilt if they are applied while the goods treated with them stand or lie about in damp places. The vapour may not be obvious, but it exists none the less.

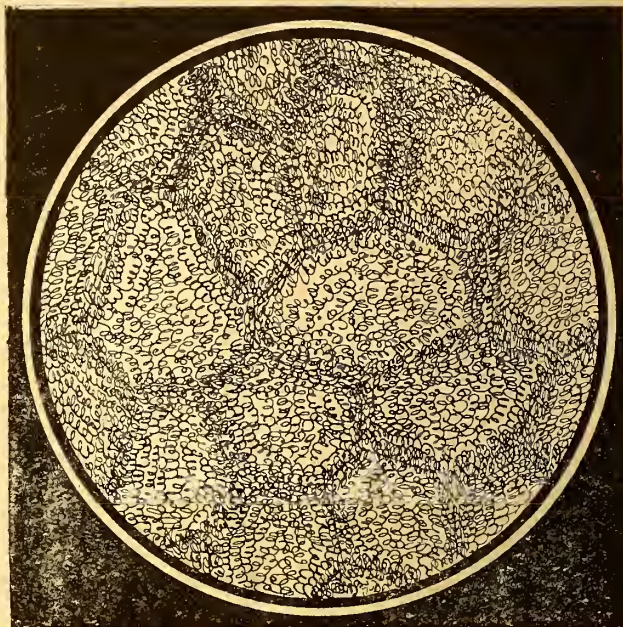
If dust of any kind is allowed to settle on to varnish before it is thoroughly dry, the particles will serve as nuclei, or starting points, for fractures and subsequent peeling, or kindred troubles, involving delays for repairs.

The varnish films must not be liable to be affected by any gases or products issuing from the motors, or attracted thereto by the suction induced through the movements of the machine.

As vapour is one of the chief enemies of varnish, I specially studied its effect on a brand supplied to me for the purpose by a leading advertising firm whose name regularly appears in *THE AEROPLANE*.

I depict the results of the experiments in the subjoined illustrations.

The films were tested on glass, so that the inner actions could be thoroughly well seen. It is quite impossible, of course, to note the changes microscopically while the substance overlies wood, metal, or fabric, because of the accompanying opacity of these materials. The light can, however, be reflected up through glass, and thus every detail of modification be watched and studied.



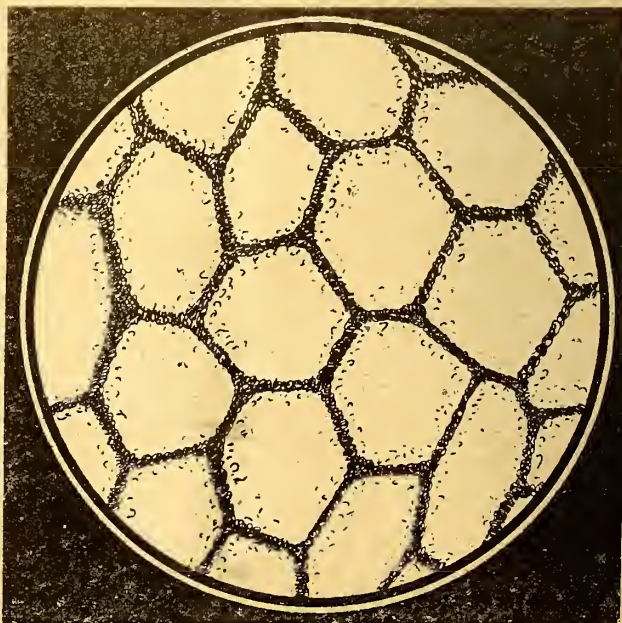
No. 1.—An area about 1/24-inch wide of aeroplane varnish exposed to damp air. It then gets covered with a misty film. Magnified.

The films were spread over several glass slides, and, when allowed to dry in a suitable and satisfactory place, slowly concentrated and hardened without departing from its perfectly homogeneous, formless, transparent state to the slightest extent.

The merest vapour considerably affected the varnish, even the breath acting in the same manner. Vapour caused the varnish to assume a foggy or milky appearance, and was caused in the following manner:—

Immediately the vapour came into contact with the varnish the latter became overspread with a very fine tracery, indicating the contours of exceptionally minute globules. At first there was a uniform texture in the film; but after a few seconds the particles shrank away from one another in groups, and then produced dense clusters arranged in a striking mesh pattern. No. 1 shows the modification commencing; No. 2 shows it in the next stage.

Gradually these thick lines, composed of separate



No. 2.—The same sized area as No. 1 of aeroplane varnish, a few seconds later. The film of moisture, etc., has contracted into dense polygonal meshes. Magnified.



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Dry, and suitable in all respects
for Aeroplane construction. Now on
offer, and to be seen at the Yard of
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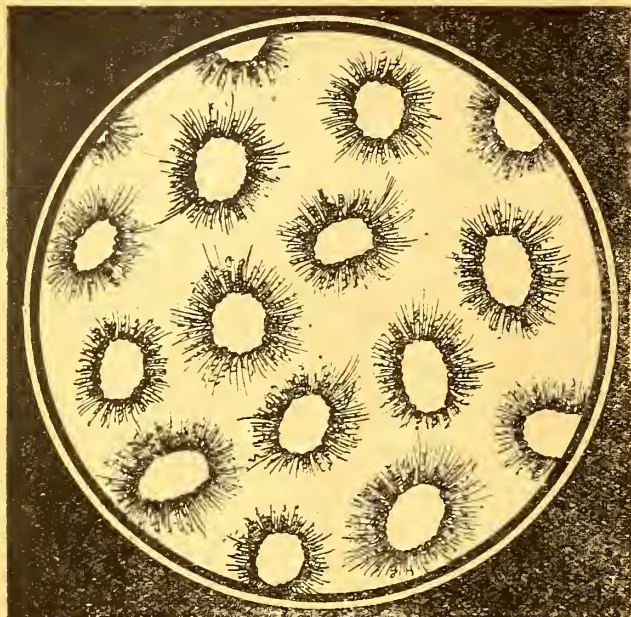


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AIRCRAFT**
Co. LTD.

RICHMOND

Telephone
RICHMOND 1865
1866

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No. 3.—The same sized area as No. 1 of aeroplane varnish, in the third stage. The dense netting has folded over and wrinkled; and finally forms odd flakes. Magnified.

atoms, curled over towards the middles of the clear spaces, and reformed as radiating creases round pores, as it were.

Then the dark parts became disorganised, folding irregularly over one another and becoming flaky.

The film of varnish was then rendered unequal in thickness and density, and hardened in such a manner that it was liable to become detached as minute flakes in dozens or hundreds, eventually proving unduly troublesome in various ways.

Continuous vapour formed successive superimposed deposits.

Wind would play upon the aeroplane thus badly finished, and dislodging the varnish flakes give rise to dust.

These would be likely to get blown into the aviator's eyes or over his goggles. They might also prove risky in other ways by choking delicate parts of the motor. The particles would be practically invisible to the naked sight, but be mischievous withal.

These, of course, are minor effects, but they are worth mentioning besides the major effect of leaving the fabric below unprotected.

A WATCHMAN'S NOTES.

After reading of the revived use of grenades, darts, fireships, armour, and such-like accessories of warfare, once thought of as almost primitive, the Watchman, in spite of the name, slept and dreamt . . . that the whole German army on a certain front had been caught alive but much mangled by the employment of myriads of mantraps.

As "dreams go by contraries" and mantraps are illegal, may the vision be taken as a warning against a coming Boche breach of civilised warfare? Forewarned is fore-armed. Luckily, too, someone having inadvertently caught a parson in one a few days back, the traps are to be had almost for the asking.

* * *

And why is aviation so frequently afflicted with crises? They seem almost as inevitable as skin-friction—of which, too, they appear highly productive. Is the disease possibly due to the insecure scientific bases and the shifting sand of practice on which aviation threw itself up?

Or did the young science outgrow its strength in the recent years of its adolescence and so become an easy prey to any perambulating ailment on the trek for a home?

In other words, are we to blame the uncertainty of its early days or the rush of all sorts to it in its latest period?

Mention of a home reminds one of the little girl whose tiny nose was quite disjointed because a small baby brother had just arrived. "What's his name, mother?" she asks. "He hasn't got one yet," replies the parent. "Oh, that's why they've brought him to the wrong house, then," adds the child, musingly.

* * *

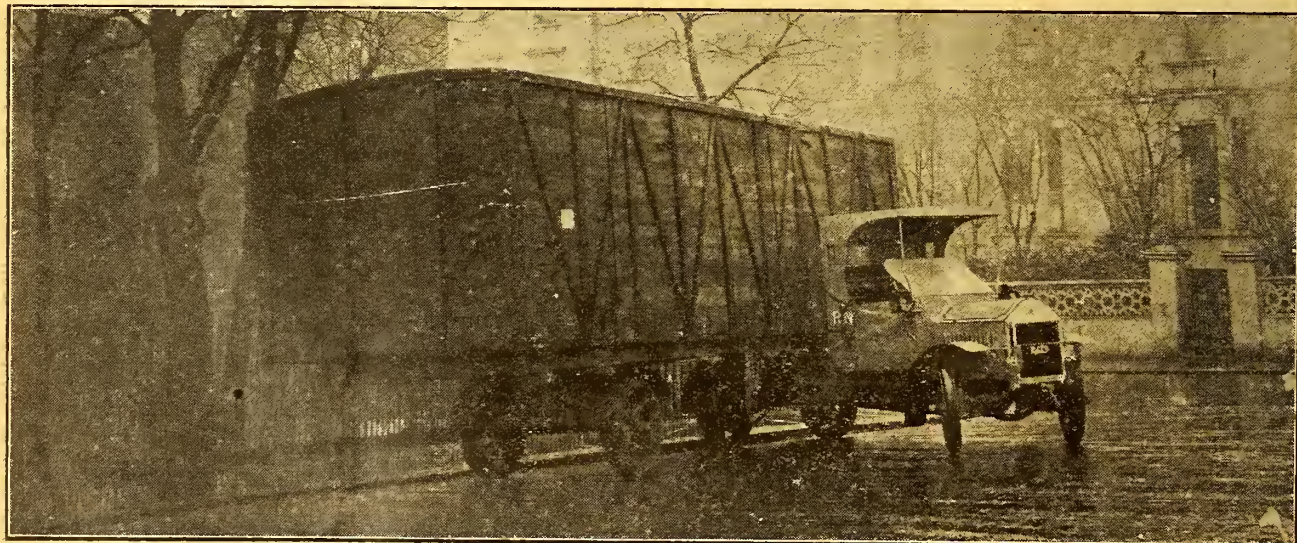
In case anyone wishes to keep up his figures though engaged for the moment on something more useful he might work out the relative effectiveness of a load of bombs and a load of darts of equal weight applied to a market-place of Boches. A French writer of note claims 300 casualties from 2,000 darts dropped at Metz.

The same writer makes the Germans have quite a Bogey-plane on the stocks. She carries eight motors in couples, three mitrailleuses, one quick-firing gun in a turret, and passengers *à piacere*, as the musicians say.

A report, too, of a machine with a gun-turret in the tail was asking to be swallowed in Switzerland quite lately. So, if nothing else, this conflict has stimulated the inventive genius of some peoples which once were pitifully dull.

* * *

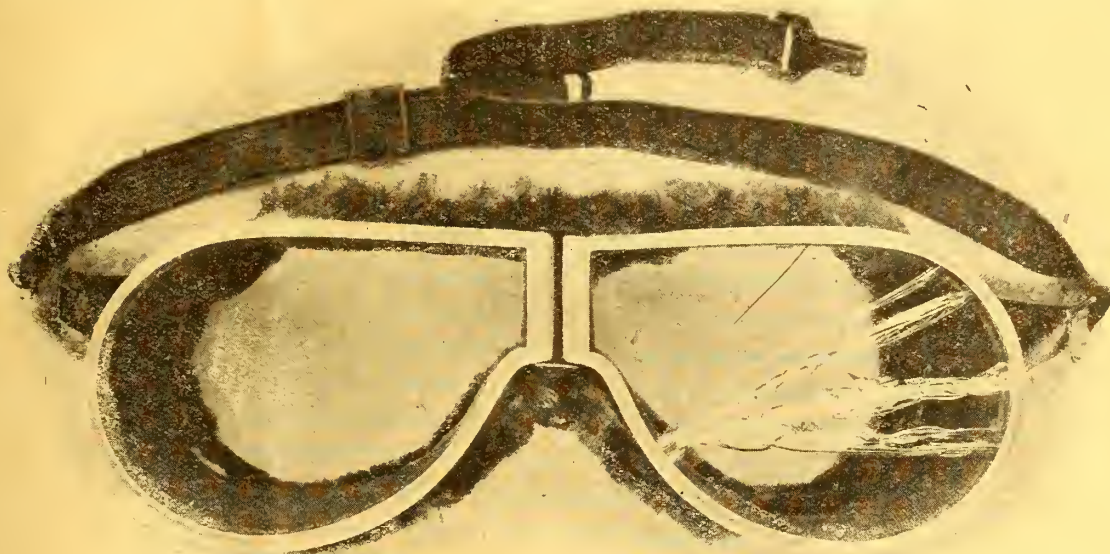
Now that punishment for their waste and undue in-



The Lacre Aeroplane Trailer turning with full lock on all wheels.

A MESSAGE FROM THE FRONT.

A pair of Goggles forwarded from London May 12th, returned May 19th. The Officer writes: "You will see I am greatly indebted to Triplex Safety Glass, as it saved my eye from being badly cut."



FEATHERWEIGHT MODE . 17/6.

The TRIPLEX SAFETY GLASS Co., Ltd.,

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dulgence in paper has overtaken those who run journals they will perhaps remember the poor needy contributors whose purse has all through the ages groaned at the "one side only" regulation. Anyhow, if this extreme economy is not imposed on us there must be a pleasing change in advertising efforts—viz., contrast of type in place of space display. Even here the weak-sighted will be worse off. And how will conciseness become England? If so, we have the horrid prospect before us of having to think for ourselves. Perhaps then we may learn to sympathise with M.Ps.

* * *

One curse of the muddling through policy is that its very nature leads it always to climb down when faced with adverse conditions, for climbing down is as the "sleepers" to the permanent way of the weak and wobbly—a guarantee of their permanence where they have been put.

Between those well-spaced stools on which the extreme right and left sit—and consequently between the differing points of view from which the sitters distort simple news before proffering it to their followers—our plain, straightforward person is bound to fall, unless instinctively he totally avoids the whole region.

Elsewhere, I believe, a live censor has insisted on a one and only version of all official statements, Parliament talk *et similia*, and this without heading or trimmings. That there is much in a title or comment, both of good or of harm, is not likely to be denied.

Apropos of all this, might not the signification of the classical word Victory be re-defined so as to include modern uses of the venerable substantive? Something of this sort might do:—

"VICTORY.—A cheerful military term denoting movement, immobility, passivity, or the like, real, suspected or desirable, and with or without a display of bunting."

* * *

It is doubtful whether the ill effects of militarism would

ever have permeated the unfortunate nation which we are now helping to restore to moral health, and unhappiness, but for excessive civilian adulation of the uniformed class.

It is a fact that it was customary for the ladies to rise to their feet when an officer was shown into or for other reasons entered into a room.

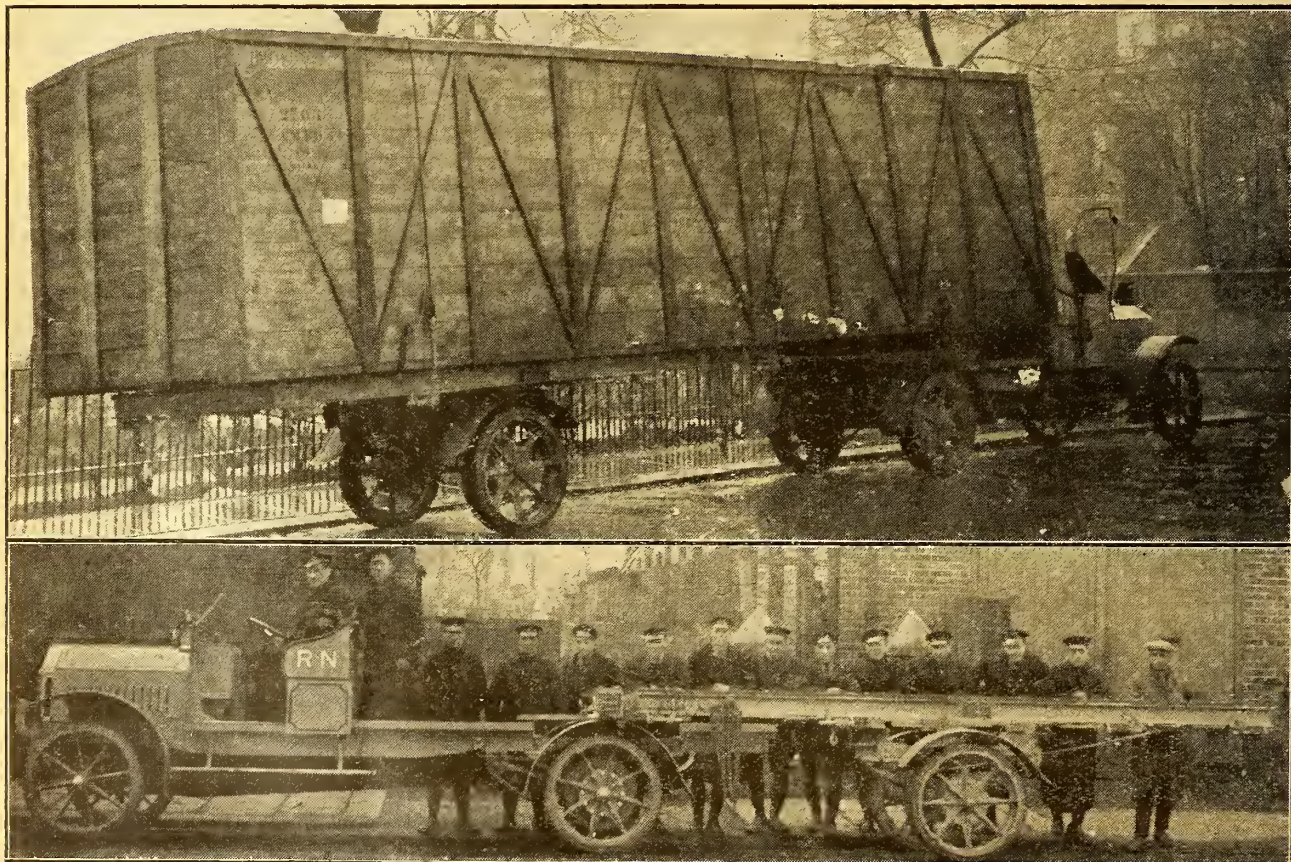
Idols are never hoisted up into niches except by the willing arms of their worshippers. When there they often become molten images and turn to their own destruction and that of the throng prostrated before them. So there is an element of danger in the immoderate hero-worship which is so distasteful to decent people, though it is scarcely possible to institute a comparison between the two nations. Besides, Germany was composed of professional soldiers, whereas we were amateurs at the calling till but a short while back.—T. S. HARVEY.

TRANSPORTING AEROPLANES.

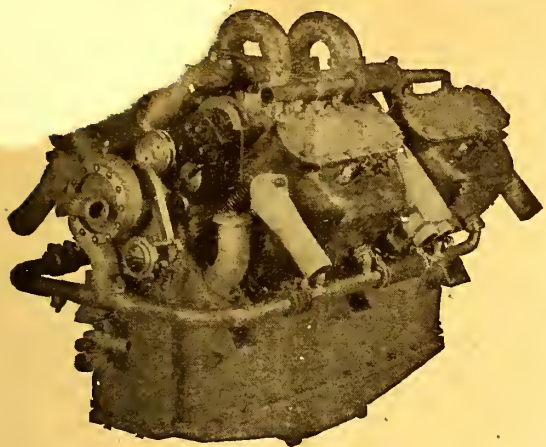
The Lacre Motor Car Company, Ltd., have produced an extremely interesting motor trailer for transporting aeroplane cases of large size. The problem of conveying the large packages containing aeroplanes and their parts swiftly through crowded streets has hitherto not been easy, owing to the enormous wheel-bases of the vehicles.

The Lacre trailer is actually a six-wheeled vehicle, with the rear portion articulated by an ingenious turntable mechanism which must not be described in detail. The result is that the vehicle can be turned through an extremely small arc, the total lock being little greater than that of a taxi-cab.

Mr. Claude Brown, the head of the firm, has long been keenly interested in aircraft, and though he has not hitherto engaged actively in the industry, this new production from his firm's shops shows that he has studied his subject with good effect. The new vehicle should be of great interest to all aircraft constructors, and an enquiry to the Lacre Motor Car Company, Ltd., 78, York Road, will produce full particulars.



TOP.—The Lacre Aeroplane Trailer with aeroplane case in position. BOTTOM.—The Trailer, showing the short wheel-base for the length of load carried.



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Contractors to H.M. Admiralty

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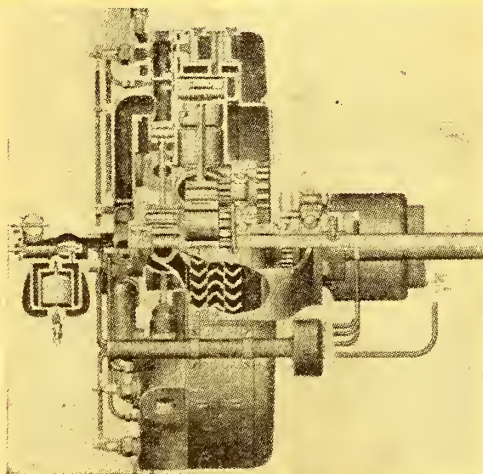
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We are also prepared to supply a wonderful twin six 40 horsepower unit power plant of the very latest design, having all the desirable features of a perfect motor. These motors are adapted to any frame of any car and are short enough to go under any hood. Supplied in any quantities at attractive prices. Information on request.

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DETROIT, MICHIGAN**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Aero-motors: In Kind and Construction.-

BY GEOFFREY de HOLI EN-STONE.

SIMILIA SIMILIBUS.

"So hard the difference to see, 'Twixt Tweedledum and Tweedledee." Which difficulty has made all the droll complications ever heard of from the time of the two Dromios onwards. Yet a difference there is between the closest of twins; and it is really extraordinary how greatly detail differences discount mass-resemblances in motors. Thus as types one might say that the Thomas and the Sturtevant are as alike as Chinamen. Probably even on the score of performance—allowing for twenty prevailing circumstances—there may be little to choose between the records of the 135-h.p. model of the one and the 140 h.p. of the other. Possibly the variations in their specifications as to material—which, being esoteric matters, I have not compared over closely—are also slight enough.

There, in the mass at any rate, one sees the same cylinder design set at the same angle; the same panelling and crown-plating; the identical valve-arrangement, and so forth; not to say much the same scheme for both gear-reduction and water circulation. To which last, all previous remarks apply.

Therefore, as the original x-chaser said, things which are equal to the same thing are equal to one another; at least, as one might expect on the score of trustworthiness.

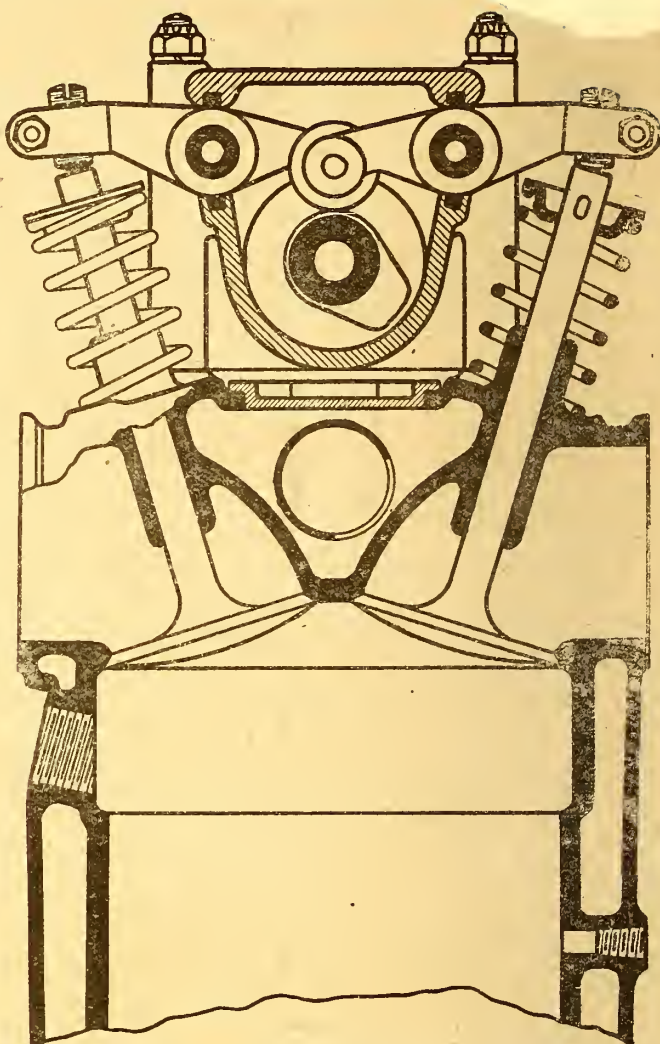
But the salient detail differences, in the case of the Thomas motor, few as they are, probably have their distinctive values from a working standpoint, and are to that extent interesting.

DETAILS AND DIFFERENCES.

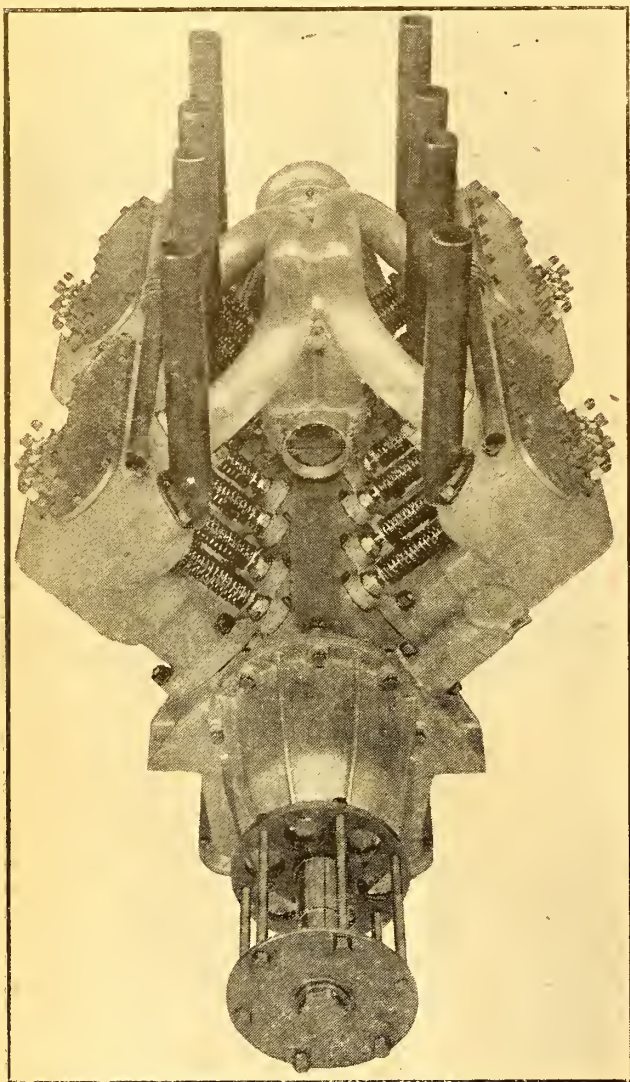
Thus the induction manifold, though generally like the four-way one of the original Sturtevant model, is attached to a much larger carburettor of entirely different design; sleeve-throttled for one thing. For a V-type motor of eight cylinders, I need hardly repeat my opinion that its central position is the best, for the reasons already given; albeit, I see none, why the manifold should not be hot-water jacketed.

A second detail difference is that the Thomas exhaust port posi-

THE HALL-SCOTT.



Section of cylinder head showing valve mechanism with enclosed cams operating in oil. The water outlet is shown between the valve passages, with an opening toward the exhaust valve.



End View of the 135 h.p. Thomas Motor.

tion—directing inwards, like those of a well-known British make of the same type—leaves no option for the lead of the exhaust gases but directly upwards, stack fashion. On which point of practice, also, I have already stated my opinion for what it may be worth.

On the other hand, the Thomas fashion of extending the upper part of the crank-chamber casting, rearwards, so as to form two little alcoves, completely enclosing—and incidentally armouring—the magnetos, seems to me a distinctly good point. For thus placed clear of the top, they are out of the way of the valves, and obviously leave the latter more accessible for adjustments, replacements, and so forth; yet remain just as accessible themselves, and as easy to adjust.

Add the conveniently placed oil-filler, and subtract the auxiliary oil-pump, and the matter of external detail differences seems to be concluded, as to aeromotors in kind. As to construction, internal specification, and still more performance, can alone decide respective merits. Which latter, only pilots are competent to discuss.

A NEW AMERICAN AEROMOTOR.

It is for this reason—it has already three world's passenger altitude records to its credit this year—as well as for certain original details, that the new California motor, the Hall-Scott A5 125-h.p. six-cylinder vertical model, is distinctly interesting.

Curiously enough, too, although the Hall-Scott Co., of San Francisco, happen to have been building aeromotors for the last seven years, beginning with a four-cylinder experimental model of only 30-h.p., the actual origin of this design was neither of the road nor marine, but derived entirely from unit-driven railway-wagon service with high-powered i.c. motors.

Obviously, this uncommon class of work—Maudslays of Coventry



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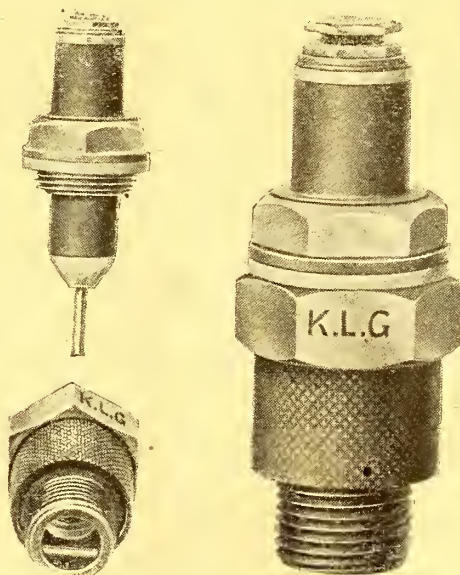
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also made a great success of it in Canada—with its demand for a continuous maximum-power-output for hours at a stretch, makes simplicity, strength, and trustworthiness the prime considerations; and therefore should have just as valuable an influence as marine work for the development of these qualities in a new aeromotor.

Always, too, the historical advantage—as old as Panhard or Peugeot—of the long-established concern in being able to develop special experimental products at its leisure, tells in aeromotor production. So there is every reason to believe the statement that when this fifth model—designed specially for military tractors—was built early in 1915, after having been thoroughly tried out in the Glenn L. Martin seaplane, it not only gave some 12 per cent. above its rated power on an eight-hour test—actually 142 h.p.—but showed a consumption of only 10½ gallons of petrol and half a gallon of lubricating oil; or some 0.58 of a pint per horse-power hour.

SOME OUTWARD POINTS.

In the mass—though obviously European in general design—the Hall-Scott is exactly like none of ours, apart from its singly-mounted cylinders. Differing from all in detail treatment, it is perhaps nearest akin to the Mercedes because of its inclined valves in slightly widened cylinder heads, and its overhead cam-shaft.

It also shares the defect of the Mercedes and others, that neither the valve-boxes nor the cylinder-heads are detachable; a defect which could have been the more easily remedied because, like the Renault or De Dion, the cylinders are each attached to the crank-chamber by four stout colonnette bolts; in which point alone, to say nothing of others, the Hall-Scott design seems distinctly better than the Mercedes.

Specially one notices the point about the cylinder modelling—otherwise simply a free and clean cored casting, in one with the water-jacket—that distance-lugs are cast on which serve to brace the cylinders solidly against each other when the colonnettes have been finally set home.

These lugs, one might say, would serve the same purpose, yet better it, if bored out to form water-connections for a continuous lead, in the manner of Benz, and one of the Panhard car-models.

Certainly there is much to be said for the neatness of that system if confined to inlets from a central duct, or, better still, a branch for each pair of cylinders, provided always that the valve water-jacketing is copious enough to make it not worth while to reverse the flow and make the inlet uppermost.

A CIRCULATION FEATURE.

However, while in this detail the Hall-Scott designer has followed the conventional branched-pipe practice, in the outlet he has

surpassed all others by running brass tubes through the water spaces in the cylinder heads, each slotted widely opposite the exhaust valves, the slots being cut successively larger towards the final water outlet in front.

Thus not only is the circulation more rapid round these hottest parts, but its progress is so regulated that all six cylinders are automatically kept at an even temperature, and the strain on the pump—placed in the Mercedes position behind and below jacket-level—is correspondingly lessened at the same time.

On the other hand, in the general outline of the induction, the Hall-Scott rather resembles Italian six-cylinder practice, with its right-and-left-to-two-threeway-branches manifold. But here again we notice a highly original detail: that the lower or main part of the manifold is jacketed all over, not for water, but for the oil that is found at its hottest in the sump; and is taken thence through a strainer and pumped direct into the manifold jacketing. Obviously, this warms the mixture within usefully for efficiency without overheating; and at the same time cools the oil, which then passes direct to the main distribution-duct bored in the metal of the crank-chamber—after the latest European fashion—and hence arrives to all main-bearings.

A CLEVER PUMP.

To complete this interesting scheme of lubrication—which is embodied in U.S. patent 632919—a bye-pass is fitted in this distributor duct, which is regulated to give any required pressure, and returns the surplus oil to the sump.

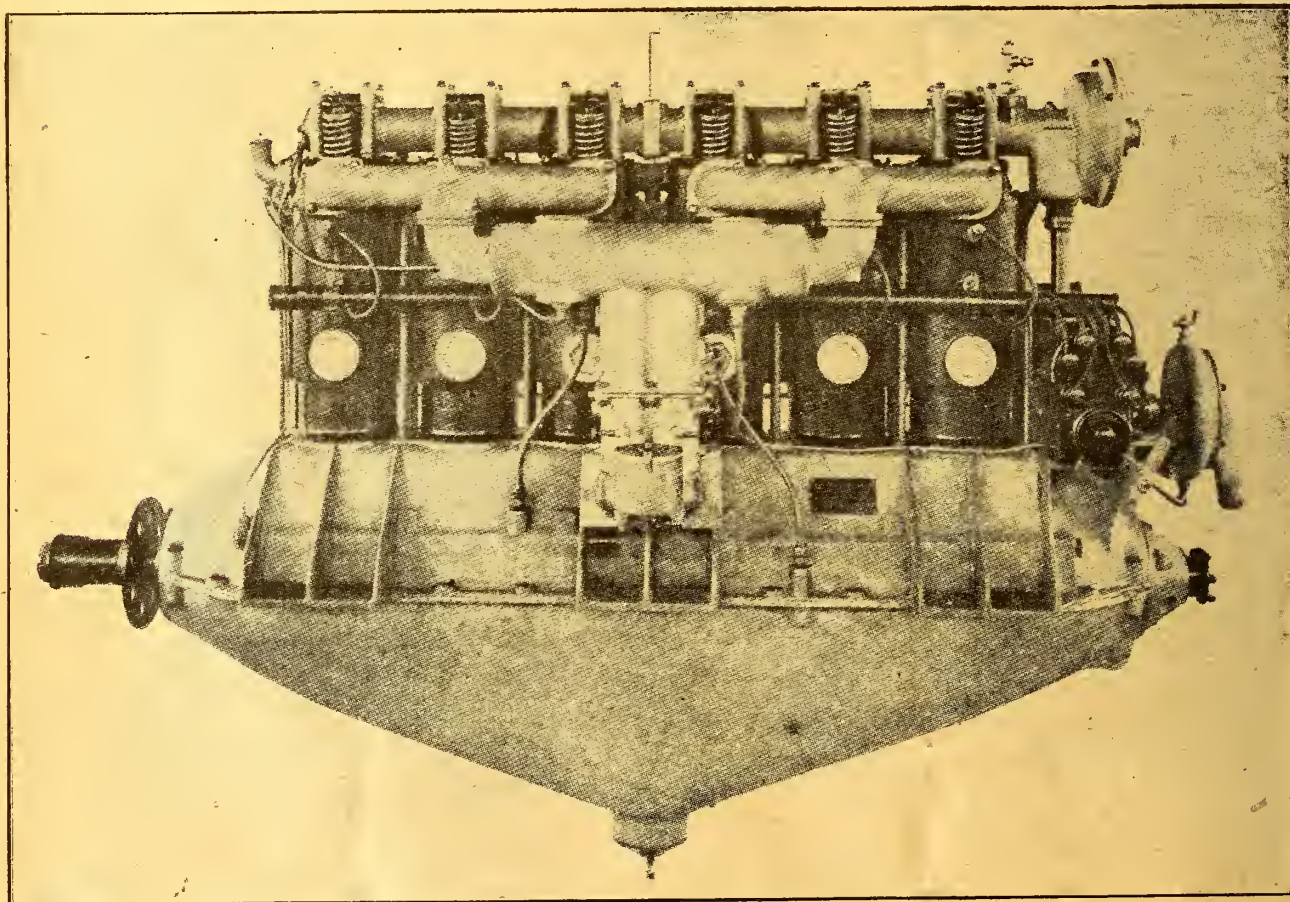
Very neat and original, too, is the oil-pump itself, which is of the centrifugal type, placed at the bottom of the sump, and driven by a long spindle—lying in bearings along the bottom of the crank-chamber—from a spur-gear driven off the crank-shaft.

In this way, no matter whether the crank-chamber is taken down, or the crank-shaft removed as well, the pump gear is not interfered with, and no connections exist to be broken. Furthermore, the system is connected to a tell-tale gauge placed centrally at the top of the motor, where it can be readily seen.

The cylinders, on the other hand, are independently lubricated by a small six-plunger pump-device—very much of the Bosch type, but with direct regulation of the stroke of each plunger—placed between the magnetos, just forward of the water-circulation pump.

THE SPECIAL VALVE-GEAR.

The valve-gear design of the Hall-Scott motor, too, is particularly worth notice; not so much because of its centrally lined overhead cam-shaft, which is nothing new, nor even because of the cleverly-contrived oil-tight casing which not only enables shaft, cams, and locker-rollers to run in oil, but just keeps the rocker-



Side View of the Hall-Scott Motor.

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pivots lubricated from inside—but because the cam-shaft line, the axis of the rocker-pivots, and the length of the rocker arms are so mutually related to one another, and again to the angulation of the valve-stems, that for once the free arms of the rockers as they move describe the segment of a circle as radii—to which the valve stems are as a constant rectangular chord.

Quite a detail. But one that absolutely eliminates all tendency to sticking or undue friction in the guide, and so enables the valve always to follow and find its true seating, so that valve trouble should be practically unknown. And by the way, one that no other designer of this type of valve gear happens to have achieved.

Which few facts, taken together with the transverse disposition and the ample size and light weight of the valves themselves, alone appear to me to make the case for the trustworthiness of the Hall-Scott aeromotor the strongest in four-stroke practice of any in the world. If only the material is as good as its picture.

For the rest, this cam-shaft—which is supported by four large bearings in its aluminium oil-bath—is driven very much in the Mercedes fashion—but with gearing in reversed relation—from a vertical shaft behind which also drives the water pump spindle from bevels and below that, from smaller bevels, a small transverse shaft coupled at either end to the magnetos.

Internally, too, the Hall-Scott aeromotor displays one or two notable points. That the pistons are machined light almost is taken for granted in such a design; but the gudgeon-pin lugs are placed lower than in most, if not all, others; being right on the middle line: the idea being not only to keep the heat away from the gudgeon pin bushes, but also to better the piston balance relatively to the motion of the connecting-rods; the thrust of which is obviously taken in this way evenly by both the top and bottom of the pistons.

CRANK-SHAFT MANUFACTURE.

The crank-shaft again, to all appearance, is like any other—except that it does not happen to be hollowed—and is of the customary ample diameters, carried by seven bearings. The novelty lies in the method of its manufacture, as it is first machined out of a billet of chrome nickel steel with all cranks in one plane. Then it is heated and the cranks off-set to the usual 120 degrees; and then finally straightened, turned down to grinding size, and finally heat-treated again and finished to its final tolerances. At its forward end, it is carried in two thrust bearings opposed, so as to fit the motor for either propeller or tractor installation.

So much for detail points. In general, the number of grades of steel shown in the specification—mostly chrome-nickel and heat treated, shows the utmost study and appreciation of the special work of every part, and so again promises trustworthiness. So

much so, that it is not exactly apparent why tool steel need be included. One might expect as much as 150 h.p. on overload—which the power-curve certainly shows—out of cylinders with a 5-inch diameter, and a piston stroke of 7 inches. But the maximum speed is only 1,230 r.p.m. with a normal of 1,000 r.p.m., and compression, as in most American motors, is on the easy side. The weight, 525 lbs., without water in the jackets, while not excessive, is certainly well above the average h.p. weight of the majority of the finest European aeromotors. But—there may well be a margin for lightening in the Hall-Scott. Equally many of them have a margin—and a liberal one indeed—to come upon before they equal its detail originality and refinement.

(To be continued.)

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UBIQUITY.

The people whose fate it is to produce THE AEROPLANE week by week are cheered by the knowledge that it is regularly perused by all kinds of people, in all walks of life and in all parts of the world, but the news that it is regularly read by an inmate of the Crichton Royal Institution, a garage for those mentally *en panne*, came as something of a shock.

The following appeared in the monthly organ of the Institution, the "New Moon," for February, 1916:—

I have been taking in THE AEROPLANE for many months, and consider it a wonderful pennyworth. Perchance it may be possible to get the following idea realised: On sea there are three kinds of motor vehicles, the seaplane, the hydroplane, and the marine motor boat; on land there are only two, the aeroplane and the motor car. The *chthonoplane* (cf. Melanchthon and autoch-

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thonous) would be incalculably useful, as a kind of Pegasus or winged Centaur with leaping powers superior to any steeplechase winner. It would be a kind of ostrich-plane to skim the surface of the ground, instead of soaring into the air. It would replace cavalry and horse artillery and mounted infantry. After a bombardment of the enemy's position the chthonoplanes would dash out of their places of concealment, leap over our trenches and barbed wire entanglements, dash across the debatable ground, leap over the enemy's barbed wire entanglements and first line trenches. Then a third would wheel round and enfilade the enemy's first line with Maxim and three-inch (75 m.m.) guns; another third would dash on to the enemy's second line, and treat it similarly; while the remaining third would get to the rear of the enemy's guns, and shoot down the gunners. Obviously the enemy would reply by having anti-chthonoplane guns concealed and silent until our attack. Equally obviously our aeroplanes would be on the alert, and wirelessly to our gunners the position of the anti-chthonoplane guns as they spotted the flashes. Like the locusts of the Apocalypse, they would have a sting in their tails—that is they would have a three-inch gun at the rear with slightly depressed muzzle to blow in the top of termite-like covered trenches as they skimmed over them. Chthonoplanes would require some springing, both strong and flexible, so that neither the machine nor its crew would be seriously damaged by occasional bumps with inequalities of the ground. The steel "Jeannin" referred to in the article on German aviation in THE AEROPLANE of February 9th, 1916, might furnish hints, since it made 2,000 attrassages on frosty ground.

P.S.—I thoroughly approve of the suggestion of a *telemachic* air service for long raids or for repelling raids, independent of the R.F.C. and R.N.A.S.—F.E., 18-2-16.

[Ill-timed comments are not required, and will be returned to the senders unstamped.—Ed.]

FICTION.

In a recent issue of the "Lincolnshire Echo" appears a letter from an individual named A. H. B. Sharpe, whose chief desire in life seems to be to give other people "the horrors." Mr. Sharpe states that it is known that "an air-battleship is being constructed in Germany, which is the largest ever made. It is believed to be 1,000 ft. long, by 60 ft. diameter. The lifting power 70 tons. It will be built entirely of a combination of aluminium and steel, and fitted with powerful engines capable of developing a speed of 120 m.p.h., driving propellers, four on either side and one placed behind the stern car. In this way an increase of speed will be obtained. The air-battleship of the future will be capable of flying at an altitude of from 15,000 to 20,000 feet. It will carry four-inch guns, also aerial torpedoes."

It would be interesting to know whether the above statement is an infringement of the Defence of the Realm Act or not, as an unfounded report of this nature is liable to affect public confidence. If the Germans were building a thousand-foot Zeppelin they would make it nearer 90 than 60 feet in diameter.

The increased diameter would be rendered necessary by the increased weight of the airship per foot run and the disproportionate increase in the weight of the engines required for the doubled speed. It would be an education for Mr. Sharpe if he tried to pick up a four-inch gun. He would find its weight more than four pounds.

Mr. Sharpe's qualifications as an aeronautical job are vouched for by the following statements which he makes in his letter:—"There is not an aeroplane built up to date that can fly at an altitude of from 15,000 to 20,000 feet. The fastest aeroplane made cannot travel more than 90 miles per hour in a calm day."

Comment is superfluous.—W. L. W.

A TOUGH JOB.

Recently the owners of large works on the Tyneside had disabled two valuable aluminium pans, weighing a ton and costing nearly £400, but, unfortunately, owing to the war, they could not be replaced. Although the firm keeps its own welders, they are not specially trained for the handling of aluminium, and they were at a loss to know how to get out of their dilemma. On an earlier occasion they had sent a fractured vessel of the same kind 400 miles by sea to a firm in London, incurring heavy expenses, to say nothing of the loss resulting from the inevitable delays in transshipment in war time. And the experiment of having one pan treated by a local firm was not a success.

Wishing to avoid a repetition of the trouble, the owners sent to Barimar, Ltd., 10, Poland Street, Oxford Street, London, W., for specialists to go up to the Tyneside and weld the two aluminium vessels in the firm's own works at Newcastle. The repair was an entire success, and the cost of the repairs to the two pans by Barimar was exactly the same as the cost of the repairs to one pan in London by the other firm. The illustration shows one of the vessels after treatment.

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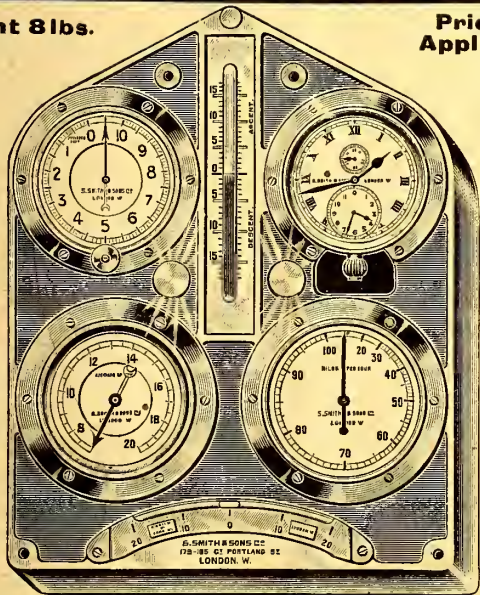
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SCHOOL REPORTS.

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Straights or rolling alone: Messrs. Egerton, Blacque, Mander, Sivewright, Evernden, Daly, Birkbeck, and Jones.

Figures of eight or circuits alone: Captain A. A. Nathan, Messrs. Rimer and Dawson.

Certificates were taken by Captain A. A. Nathan and Mr. A. L. Rimer.

Machines in use: Three L. and P. tractor biplanes.

AT THE GRAHAME-WHITE SCHOOL.

Instructors: Messrs. Biard, Hale, Manton, Pashley, Russell, and Winter.

Straights with Instructor: Messrs. Jaimie, Reymer, Donald, Goodhart, Rodocanachi, Welinkar, Ballard, Hodgkinson, Key, Forster, Fisher, Ward, and Callard.

Circuits with Instructor: Messrs. Cooper, Rabourdine, and Turner.

Figures of eight or circuits alone: Messrs. De Beer, Smith, and Parkinson.

Certificate was taken by Mr. Sloden.

Machines in use: Grahame-White biplanes.

AT THE BEATTY SCHOOL.

Instructors: Messrs. G. W. Beatty, G. Virgilio, A. E. Mitchell and H. Fawcett.

Pupils during the week: Messrs. Gliksten, Drewery, Venables, Murdoch, Roberts, Knox, Phillips, Stanley, Dowding, Davy, Gaskin, Hoskins, Earl, Skeet, Kay, Edwards, Jones, Whitmore, Hick, Garlick, McPherson, Mitchell, Towson, Elliot, Austen, Goodman.

Certificates were taken by Messrs. G. F. Barrow, C. F. Brewerton, and B. Gaskin on Caudron biplanes.

Machines: Beatty-Wright dual control and single-seater propeller biplanes, Caudron tractor biplanes.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors: Messrs. Edouard Baumann, Felix Ruffy, Ami Baumann, Clarence Winchester, Andre Thomsen.

Pupils with instructor: Messrs. Babington Smith, Trubridge, Beebe, Fanshawe, Wilson, Carr, Fraser, Williams, Di Balmi, Edgar.

Straights or rolling alone: Messrs. Fanshawe, Williams, Wilson, Fraser, Winter, Whittaker, Edgar, Westlake, Di Balmi.

Figures of eight or circuits alone: Messrs. Winter, Edgar, Torres, Maya.

Certificates were taken by Messrs. H. E. Winter, J. Edgar, O. M. Torres, Antonio Maya, and J. Whittaker.

Machines in use: 50 and 60 Ruffy-Baumann dual control tractor biplanes.

A new 60-h.p. Ruffy-Baumann biplane has now been put into commission and another new 50-h.p. machine is well on the way to completion. Further accommodation has been rendered possible by the erection of the marquee.

BOURNEMOUTH.

AT THE BOURNEMOUTH AVIATION SCHOOL.

Instructors: Messrs. S. Summerfield and Brynildsen.

Pupils rolling alone: Messrs. Pritt, Scaramanga, Daniel, Green, Brandon, Turner, Hammersley, Hinchliff, Little, J. B. Smith, Montgomery, Wingfield.

Straights alone: Messrs. O. Wilson, Smith, Barlow.

Half-circuits alone: Messrs. Morris and J. Wilson.

Figures of eight and circuits alone: Mr. Morris, who is now flying exceedingly well. Has the makings of a very good flier.

Machines in use: 35, 45, 60 h.p. Caudron tractor biplanes.

The usual exhibition flights were again carried out during the week by Mr. S. Summerfield. Although the weather was far from ideal, many interesting flights were made, and several passengers were carried. Mr. Stevenson, of the R.A.C., paid a visit to the aerodrome last week and witnessed several Service machines on the ground.

THE WEEK-END AT HENDON.

The weather could hardly have been less favourable for flying demonstrations than it was during the week-end at Hendon.

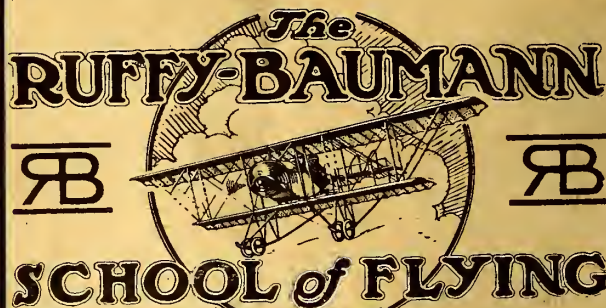
Heavy winds and many rain storms interfered seriously with the attendance, and those visitors who were keen enough to go out to the aerodrome sat around in the restaurant and talked about Wet Sundays and Blank Holidays.

On Saturday, the only pilots flying were Messrs. Hale, Winter, and Pashley on the Grahame-White three-seater, and Mr. G. W. Beatty on a Beatty-Caudron. Four passengers were carried on the former machine.

On Sunday the first pilot out was Mr. Smiles on a 50 h.p. L. and P. machine. He was followed by Mr. G. W. Beatty on a Caudron, and Mr. Sykes on an L. and P.

The Grahame-White 60 h.p. biplane made various ascents, and carried a number of passengers, the pilots being Messrs. Pashley, Manton, Russell, Biard, and Hale.

On Monday one flight only was made by a Grahame-White pilot, accompanied by a brave passenger.—D. W. T.



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The R.F.C. on active service apparently manage to make life amusing behind the lines. The following programme of an entertainment "somewhere in France," sent by an R.F.C. man, quite recalls the efforts of "The Follies" in the happy days of the late lamented Pelissier:—

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Miss Cis Turn,
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Lt. Fyre Irons.
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Mdlle's. Iona Flatt, Mona Plane, Una Howe, Etc., Etc.

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2. Song "Tulip Land."
3. " " "My Kirchner Girl."
4. " " "Glad to See Your Back."

SELECTION "Girl on the Film" G.H.Q. Troops Orchestra.
Orchestra under Direction of Cpl. Buri, 2nd K.E.H.

LA MARSEILLAISE.

PART II.

1st Scene—THE HAREM OF SULTAN EL RAMADAN.

Wishee { Kood } Attendants.
Wood
Itchy Koo. }
Ava Banana—A Dancing Girl.
Chorus of Dancing Girls.

SELECTION Orchestra.

2nd Scene—AN AERODROM.

Banka }
Loopa } Speciality Turns. Lt. Phorta Phokker.
Hamma } Lt. Tauta Tauba.
Sam Brown.

3rd Scene—AN ESTAMINET IN FRANCE.

MUSICAL NUMBERS.—The Sultan, Optimist and Pessimist, 12 Little Plane, Closing Chorus, Crash Me and Orchestra.

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In the present scarcity of sound ash this offer presents an exceptional opportunity. The photograph published elsewhere only depicts a portion of the timber in the parcel.—W. L. W.

A CHANGE AT HENDON.

Mr. A. Murray Ross, who has occupied the position of school manager for the Grahame-White Company at Hendon since the beginning of the war, appeared at the aerodrome on Saturday last in the uniform of an assistant equipment officer of the R.F.C. It is understood that Mr. M. D. Manton will in future act as school manager and chief pilot.—D. W. T.

AN ADDRESS TO NOTE.

The M-L Magneto Syndicate, Ltd., makers of the M-L magnetos for motor cycles and aeroplanes, notify that their address is now Victoria Works, West Orchard, Coventry. The Victoria Works were at one time in the occupation of the Centaur Cycle Company, Ltd., Coventry, for whom they were specially built. The works have a wide expanse of flooring, are well lighted, and in every way adapted for the excellent and careful workmanship for which the M-L magnetos have already gained a great reputation.

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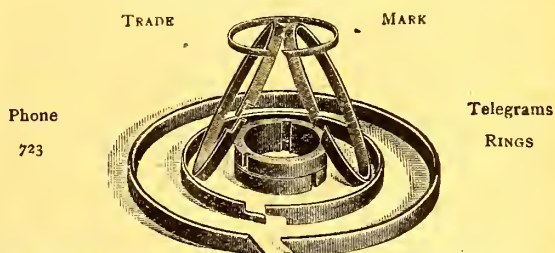
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TO R.N.A.S. OFFICERS.

A very interesting little book just received for review is "All About the Germany Navy." It gives photographs of the leading German ships and silhouettes of very many others, which should help in identifying them, whether battleships, cruisers, torpedo-boats, or submarines. The full-page photographs include various types of ships, such as the "Derfflinger" (battle-cruiser), "Seydlitz" (battle-cruiser), "Von Der Tann" (battle-cruiser), "Kaiser Barbarossa" (battleship), and "Kaiser" (battleship), etc.

The book was produced by the late Fred. T. Jane shortly before his death, and is actually a kind of *précis* of "All the World's Fighting Ships." Every officer and man of the Royal Naval Air Service will find the book interesting, and many of them will find it exceedingly useful.

It is produced by Sampson, Low, Marston, and Co., Ltd., and sells at the modest price of 1s. net. It can be procured post free for 1s. 3d. from the William Dawson Publishing Company, Ltd., Rolls House, Breams Buildings, E.C.

EXPERIENCES OF A TEST PILOT.

Messrs. Sidney Pickles and Clifford Prodder continue to fly almost daily on machines of many types. They have so many interesting adventures in their trips across the country that one hopes they will find time some day to write down some of these episodes for the edification of the general public.

A few days ago Mr. Prodder was flying from one aerodrome to another when motor trouble made a hurried descent necessary. The only field of a suitable character was thickly populated with cattle and other quadrupeds. The only way to clear the course was for Mr. Prodder to make one or two circuits of the field within a few feet of the heads of these animals and frighten them away to the edge of the field. He was then able to make a safe descent, although he says the animals took so great an interest in his machine that he had some difficulty in keeping them away from it after he had landed.

A less experienced pilot would probably have run into a few of them and caused considerable moral and material damage to all concerned.—D. W. T.

A LEGAL DECISION.

From the "Times" newspaper, June 8th, 1916:—

In the High Court of Justice (Probate, Divorce, and Admiralty Division), on June 7th, the case of Grahame-White v. Grahame-White was tried before Mr. Justice Horridge.

In this petition Mrs. Dorothy Cadwell Grahame-White prayed for a divorce from her husband, Claude Grahame-White, on the grounds of his statutory desertion and adultery. After evidence of adultery, taken by leave on affidavit, had been read and further evidence also of adultery had been given, Mr. Justice Horridge pronounced a decree nisi, with costs.

MISCELLANEOUS ADVERTISEMENTS.

All Advertisements for the Miscellaneous Advertisement Columns should arrive at this Office by first post on MONDAY to ensure insertion.

Special PREPAID Rate: 18 words 1/6; Situations Wanted ONLY, 18 words 1/-; 1d. per word after.

For the convenience of Advertisers, replies can be received at the office of "THE AEROPLANE," 166, Piccadilly, W.

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Wanted at once, good Aeroplane Propeller Makers. No person on Government work will be engaged.—Apply your nearest Labour Exchange, quoting No. A1,868.

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LEARNING TO FLY.

The Grahame-White Aviation Company, Ltd., have just produced a brochure on "Learning to Fly." This booklet, which is tastefully printed and arranged, describes minutely the working of the Grahame-White School at Hendon, and gives the reader a very good idea of what to expect when he signs on for tuition.

Sections of the booklet deal with the following subjects:—

The choice of a flying school.—The stages of instruction: (1) Mastering the controls; (2) Flights with instructor; (3) First flights alone; (4) Turning in the air; (5) Final evolutions; (6) Gaining the R.Ae.C. Certificate. Cost of tuition—Premium pupils—Apprenticeships—Inquiries—To reach the aerodrome—Some aviators trained by the School.

The brochure also contains some excellent photographs, some of them illustrating the different phases of instruction and others showing the interior of the Grahame-White works.

Applications for copies of "Learning to Fly" should be made to the Grahame-White Aviation Company, Ltd., the London Aerodrome, Hendon, N.W., mentioning THE AEROPLANE.—W. L. W.

GRAPHIC INSURANCE.

A novel and interesting book has been issued by the British Dominions General Insurance Company, Limited.

It comprises reproductions of over 80 different advertisements which have appeared in the Press since the beginning of 1916. Most of them deal with the "All-In" Policy, which was referred to some time ago in THE AEROPLANE.

The comprehensive and inexpensive nature of this policy has met with a most favourable response from the public, and the company is to be congratulated on the attractive publicity campaign which this book illustrates.

Insurance advertisements, as a rule, are noted for their dull and unattractive character, and the enterprise of the British Dominions General Insurance Company in bringing its business before the public is to be highly commended.—D. W. T.



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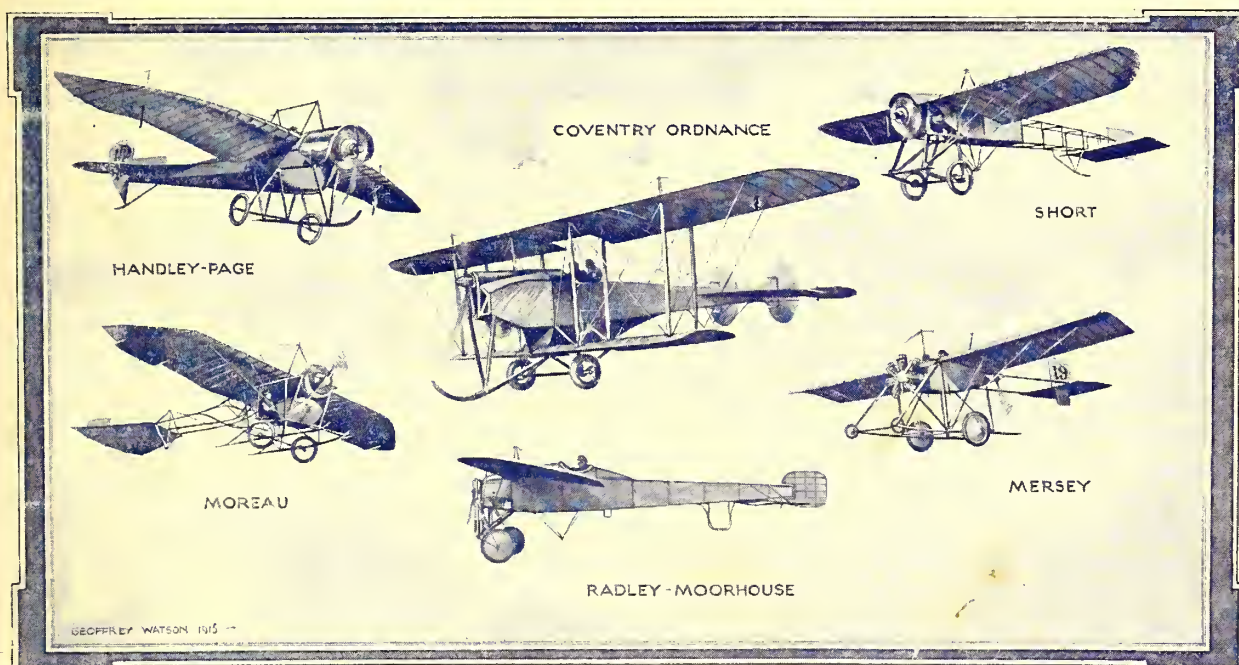
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Vol. X. No. 25

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ON THE HUN AND THE TIME FACTOR.

One of the difficulties about producing a technical paper in war-time is that one is naturally debarred from discussing the latest developments in the particular science or trade with which one is concerned. For example, nothing would be so interesting to the Services and to aircraft constructors alike as descriptions of the newest aeroplanes and engines now being built in this country and in France, and probably nothing would be more cheering. But it is still more certain that the said descriptions would be of even greater interest to the enemy.

All papers published in this country reach Germany sooner or later via neutral countries, and the German Intelligence Department is certainly as painstaking as any in the world in dissecting and handing out to the people most concerned various scraps of information which, when pieced together, supply the keys to situations hitherto not understood, or to the existence of mechanism or weapons formerly only suspected. Therefore, whatever one writes, one has to keep continually in view the fact that it will be read by people who are adepts in the art of putting two and two together and making five, or even six, out of them—much as a German palaeontologist will make you a complete prehistoric animal out of a fossilised tooth and a toe-nail.

Hence one's style is somewhat cramped in describing or even mentioning British or French aircraft until one is absolutely certain that some time has elapsed since the first of the particular type under discussion has fallen intact into the hands of the enemy—as proved by photographs such as those published in this paper some time ago, showing sundry Avros, B.E.s., Moranes, and so forth in the hands of the Huns. Even then one might have difficulty in persuading the Censorship to pass anything like a detailed description, for, somewhat naturally, it is no part of a Censor's job to know what aeroplanes have or have not been captured.

Apart from describing aeroplanes and engines one cannot, with safety, discuss even new theories of aviation, or schemes for aeroplane details—unless they are of pre-war out-of-dateness—for here again one might be giving the enemy's technical people fresh ideas or putting novel notions into their heads.

The Germans are particularly dangerous people in this way, for, though they never seem to invent anything new themselves, they are simply marvellous at developing and perfecting things invented or produced in a primitive form by others. Give them even a clue to a new notion, and, if it promises well, they will develop it to its utmost capacity. If genius is an infinite capacity for taking pains for a long time, then the German has genius.

For example, "Fat Bertha," the big German howitzer which abolishes fortresses, came as a revelation to most soldiers and all civilians at the beginning of the war. Yet some few inconsiderable people remember that 17-inch howitzers—or rather mortars—were used in the American Civil War, let alone 25-inch or 30-inch mortars tried by the

British Army 50 years ago. The German submarines not so many years ago were hopelessly inferior to British and French craft, yet to-day any submarine officer will admit that the Germans have little to learn from us, either in design or workmanship, and they have evolved their "under-sca boat" by sheer assiduity in spying, copying, and improving. And the same with Dreadnoughts.

THE AEROPLANE SEQUENCE.

Similarly in aeroplanes, their first early machines were copies of the Austrian "Taube," and then, as the British Avro set the fashion in tractor biplanes, so the Germans evolved the great biplanes which before the war beat everything in the world for long-distance, duration, and high flying, and after war broke out beat everything again as fighting machines and long-distance reconnaissance craft—barring always the little British single-seater scouts and a few fast French monoplanes.

Then when there was no further need for long-distance reconnaissance over France, and the big machines were taken away to Russia and Serbia and Turkey, the Germans produced the Fokker in imitation of the Morane "destroyer."—Yes, I know Mijnhoeer Fokker is Dutch, but there is precious little difference racially and temperamentally between some Dutchmen and most Germans.—Also, the Germans produced the tiny, fast L.V.G. and Aviatik biplanes in imitation of our Bristols and Martinsydes, and it is well to remember that Herr Schlegel on a D.F.W. scout, built in frank imitation of the Sopwith "tabloid," broke all sorts of cross-country records before the war.

Then, after war broke out, but before Italy went to war with Austria—she is not yet at war with Germany—Signor Caproni produced his twin fuselage three engined biplane. Not long afterwards the German "two-tails" appeared in France, without much success, and was soon followed by "Wong-wong," the twin-engined tractor with a single fuselage, which was also something of a failure. That, if my memory serves me correctly, was somewhere very early in 1915, well over a year ago.

Now, I am told by an American friend who has recently come from France that the pertinacious Hun has produced a really successful twin-engined single fuselage machine, carrying three guns, two of which can be used on a broadside. Apparently this machine has been used at Verdun, and its speed is said to be at least equal to that of the fast French single-seater "destroyers," so that, when outnumbered, it has a fair chance of getting away.

Of course, twin-engined machines, such as the Caudron, have been used by the French and British with much success for months, and have proved to be excellent weight-lifters and climbers, but no one would claim for them the speed of a scout, nor a clear field of fire from the after seat. Their rôle is that of the bombardment machine rather than of the fighter.

Thus one sees how the German genius for imitation and development scores in time, and how necessary it

is to keep on improving, so as to keep ahead of the Hun, and how equally necessary it is not to discuss publicly, or at any rate in print, anything which may give him the clue to further improvements. One may, however, safely discuss matters in which the German excels us, or matters of which events have shown he has already full knowledge.

SPEED VERSUS SIZE.

For example, there is this matter of speed. First the ordinary Fokker monoplane with the 100-h.p. Oberursel engine, and then the Immelmann type with the 160-h.p. Mercedes, showed that the German appreciated the value of speed. The bigger biplanes with two guns were also very fast, and this latest twin-engine machine is seemingly the limit for big machines up to the present. But where the German apparently fails is in his supply of pilots who are able to fly very fast machines. And this is where the British and French temperament scores.

Some people are fond of talking of aerial battleships which will drive off numbers of small fast machines just as a battleship drives off destroyers. These people seem apt to forget that in such an action the battleship scores because of the size and range of its guns and the heaviness of its armour rather than by the mere number of its guns. Which is to say that, if a big ship were as vulnerable as a destroyer and only carried guns of the same size and range, one such battleship would be at the mercy of a destroyer flotilla which carried in the aggregate a greater number of guns—leaving torpedoes out of the question, because a destroyer's guns will carry farther with accuracy than its torpedoes.

THE BATTLEPLANE FALLACY.

Therefore, before a battle-aeroplane can stand up to a number of small, fast aeroplanes in the hands of skilful pilots it must first of all be less vulnerable to machine-gun fire than is a small aeroplane, and, secondly, it must carry guns which outrange machine-guns, which throw a heavier projectile with as much accuracy as a machine-gun, and which fire with sufficient rapidity to discharge in a given time a greater weight of metal than the attacking small craft can pump out in the same time. And with all this it must be very considerably faster than the small machines which attack it, otherwise it cannot pursue and destroy them if it beats them off, and it cannot escape them if its guns jam or are otherwise put out of action.

Possibly such a machine may be evolved in years to come, but its production involves such problems for gun-makers, aeroplane-makers, armour-plate makers, and engine makers alike that the time-factor almost certainly

puts it outside the range of practical politics, for it is scarcely to be expected in the present war, which can hardly last for more than another four or five years. And the time, money, factory space, material, and man power which would have to be expended in producing one such machine could be spent very much better in building a quantity of small machines designed to knock out any Hun battle-aeroplane which might appear.

In this country we have always led in the production of small aeroplanes of enormously high speed, and there is no doubt that we can keep our lead in this respect. Our genius for producing such machines seems the outcome of the national temperament which produced the small ships that beat the Spanish Armada, which produced the British hunter and hunting man, and which produces our destroyers and submarines and their officers.

The German knows that he cannot produce "scout" pilots as we can, and so pins his faith to the bigger machines, which with his genius for organisation he can produce efficiently and economically—as a matter of time rather than of money. Also, he has his wonderful engines, unbeaten for simplicity and reliability, as yet.

Our game is undoubtedly to beat him on time. That is to say, on the speed of our machines and the speed of their production, and he knows it thoroughly well. Our "scouts," "tabloids," "bullets," and "babies" are quite capable of tackling anything the Hun can put up against them in the way of fighting machines, big or little, provided we have enough of them.

Naturally engine-powers and range of action will increase, and the 80-h.p. "tabloid" of the early days of the war may become the multiple-engined 500-h.p. "projectile" of the end of the war, but it will still be a little destroyer compared with the big German battle-aeroplanes. Let the Hun play his own game, and let us beat him at it, not by imitation but by originality.

Time is the essence of the contract. Let us encourage our designers to keep ahead with new designs, and let the High Authorities give successful new designs prompt orders instead of keeping them hanging round for months because obsolete or obsolescent machines are still undelivered. All contracts should be subject to a time-limit, and any contracts unfulfilled when the time ended should be washed out and replaced by new contracts for new types. In fact, contracts might well be placed for as many machines as a firm can build up to a given date, instead of for a specified number of machines. This would accelerate output, but its indefiniteness as to cost might upset the Treasury. In which case the Treasury might be talked into sense by someone who realises the importance of the time-factor in aviation.—C. G. G.

ON THE PLACE OF CIVILIAN SCHOOLS.

So far as one can gather in the intervals between extreme pressure and moderate pressure of work, it appears that the proprietors of the various civilian aviation schools are very anxious to fall in with the rules of the Royal Aero Club which were made public a fortnight ago for the regulation of flying schools, but it must be evident that if the schools are to fulfil these regulations they must have active support in official quarters and not merely good wishes.

In some cases schools already comply practically fully with the Aero Club requirements. In others it will be necessary to spend a certain amount of money on spare machines and extra equipment generally in order to fulfil the regulations, and in all cases, if the War Office really intends to give active support to the schools so as to use their experience and ability to the best possible advantage, it will be necessary for each of the schools to spend a good many thousands of pounds in aeroplanes, spare parts, and additional accommodation, so as to give any considerable influx of pupils a thorough training in the elements of

aviation before handing them over to a more advanced course at military schools.

One ventures to suggest, therefore, that the Director of Air Organisation at the War Office would do well to go very thoroughly into this question of the production of pilots.

No doubt, as the general military organisation of the R.F.C. expands it might be possible for the R.F.C. to deal with all candidates right from the beginning, but it seems probable that it would be a very much better paying proposition in all ways if as much of the elementary training as possible were left to the civilian schools.

There is a good deal to be said in theory for catching a man young and training him from the very beginning in the ways of the Service of which he hopes to be an ornament, and in a general way the soldier trained at Sandhurst or the "Shop" is a better soldier than the one who comes in via the Universities, the Special Reserve, or the Territorials, and similarly Naval officers who went through the old "Britannia," or, in the case of Engineer officers,

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through Keyham, have been superior to those who came in among the "Hungry Hundred," or via other special and unusual channels. But these rules are by no means without exceptions, and it frequently happens that the man who is sufficiently keen to get into a Service in later life by an indirect road involving considerable trouble is an exceptionally able officer, and that, on the other hand, the youngster who went in by the usual early door has found out in later life that he did not care for his job, and has left it after a few years, by which time he had cost the State very considerable sums in his education, if not in his pay.

Further, one may point out that although the Navy catches its officers very young, and sends them to Osborne at a very tender age, they are, as a general rule, supposed to be able to read and write before they go there. Occasionally one comes across officers of both Services who have managed to reach quite responsible positions without ever having learnt to write—but that is rather by the way.

However, from this general state of affairs one may draw an analogy with the case of the Flying Services. It seems that one might regard the civilian schools as occupying somewhat the same position as a preparatory school does to the youth who is going to one of the big public schools. The point of training at which he is capable of passing for the Royal Aero Club aviator's certificate might be regarded as precisely similar to the point at which a boy is capable of passing the very simple entrance exams. to a public school. If a boy is incapable of acquiring that much knowledge at a reasonable age it is fairly obvious that he will never be of any use at all at school, still less at a University, and similarly if a man is incapable of learning so much about flying as will qualify him for the R.Ae.C. certificate, it is fairly obvious that he will only waste time and damage material at an R.F.C. school, and that he will never be capable of going on active service.

Now, to take a child into a big public school and teach him his A.B.C. would be sheer waste of teaching talent, and of the general establishment charges of such a school, and though at a private school he may acquire bad habits, both educational and personal, they are fairly soon knocked out of him when he goes to live among people whose lives are governed by a certain definite set of rules.

In the same way, although a pupil at a civilian school may acquire certain tricks of flying, or certain habits of life, which are not regarded with favour in the Services, he does at any rate acquire the elements of his job, and his habits will very soon be put right when he goes to live in an entirely military atmosphere.

THE QUESTION OF COST.

It would be very interesting if one could only find out precisely how much each pupil at a Naval or Military school costs the State up to the moment of taking his certificate. When one reckons on the cost of aerodromes, reasonable interest on the cost of buildings, and his share of the pay of commissioned officers, N.C.Os. and men employed at the school, together with his share of damage to machines, worn-out machines, repairs, transport and running expenses, it is quite possible that the cost of each pupil would be nearer £200 than the £75 which is offered by the War Office to officers who qualify for their certificates at their own expense.

When one is discussing the matter of expense in connection with military matters, one is a little apt to forget that money, as money, is of no account in the conduct of military operations, and that in the winning of a war time is the only commodity which is of real value. It is the failure to realise this elementary fact which makes so many otherwise excellent people talk nonsense about the need for business Governments, and the lack of business methods in the Services. Service efficiency is not a matter of saving money but of saving time, and the only way in which money really enters into the question is where by spending an equal amount of money in a different way it is possible to save time thereby.

On this account, also, there seems to be quite a good case for organising the civilian schools under official or semi-official supervision; for if such schools are guaranteed a steady flow of pupils, if such pupils are placed with them at a price which makes it possible to make a reasonable profit for the schools, the schools themselves will then turn out pupils as quickly as possible as a commercial proposition, for no school wishes to have a pupil hanging about for an unreasonable time before he takes his certificate. The automatic process of speeding up which would thus be achieved would probably produce a greater number of pilots in a given time than would be produced at a similar elementary school run entirely by the Army itself, for the Army instructor has no direct incentive to work himself very hard in the training of beginners, nor to take special pains with slow beginners—who often turn out to be the best pilots in the end.

TUITION PRICES.

The question of price, however, enters very closely into the question, so far as the schools themselves are concerned. It will probably be found that the majority of school proprietors will agree on one point, even if they disagree on everything else—namely, that under existing conditions it is impossible to train a pupil for £75. The cost of material for aeroplanes and engines has increased enormously, rents have gone up, wages have gone up, the cost of living has gone up, and yet the £75 remains.

It is well to remember that there was a time when the War Office paid £100 per pupil, and that this price was reduced to £75 largely through one school cutting prices against another before the war, and the cutting was largely done by schools, many not now in existence, which never attempted to reach a standard of equipment anything like that demanded by the new Aero Club regulations—though, be it said, these same regulations err, if anything, on the side of leniency towards the schools.

It would therefore be well for the Director of Air Organisation to spend a little time in going somewhat closely into the question of cost. He would probably agree, if he did so, that even £125 would be quite a cheap price for the War Office to pay for the acquisition of pilots already able to fly. Which is to say that, while he would get 100 pilots for £12,500 spent on the civilian schools, he would probably not get anything like that number for the same sum spent on purely Service schools, and he would not get them as quickly.

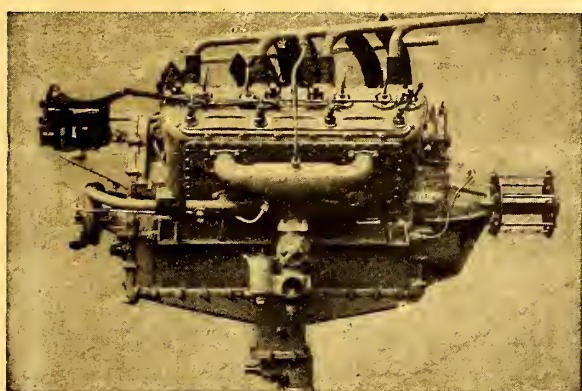
One imagines that the chief obstacle to the raising of the school fee is that the Treasury was told that £75 was the correct price for a pilot some years ago, and it is not quite clear whether the Military Aeronautics Directorate has ever approached the Treasury with the suggestion that the price should be raised. One feels sure that, if Treasury officials could be shown that all-round saving could be effected by paying even £125 per pilot, there would be very little demur to raising the price, especially in these days when any workman who asks for a war bonus gets it without any argument, either in a Government Department or in private employment.

A CLEAR ADVANTAGE.

A further advantage about employing civilian schools to their full capacity in the elementary instruction of aviators is that many of the Service schools which are at present employed in elementary instruction can be turned forthwith into advanced schools, where pupils can learn cross-country flying and can qualify for their wings.

It may be well once more to emphasise the fact that if the schools are to become a national asset—as they are entitled to be considered, just as any other source of production is considered in time of war—it is necessary to ensure to them a steady flow of pupils. One does not know precisely how many names there are on the waiting list for the R.F.C. at the moment, but it is some months since it was stated in the House of Commons that there were the better part of a thousand names on it.

8
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150
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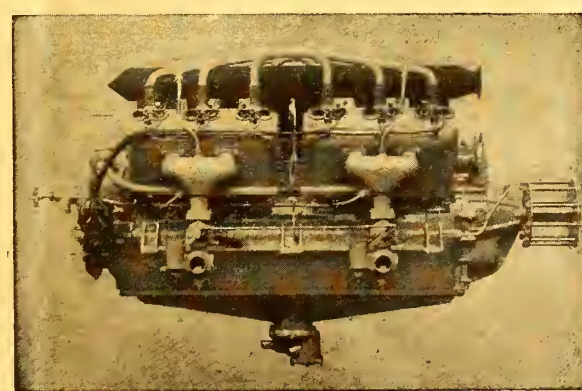
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Enthusiasm for flying is undoubtedly increasing rather than diminishing in the Army, especially since it has become generally known that very great improvements have been taking place in the whole administration and organisation of the Flying Corps during the past three months or so. Therefore, there can never be any lack of pupils for both Service and civilian schools until such time as the Army Council decides that the R.F.C. is sufficiently large, or until it decides that no one further can be spared from the Line to join the R.F.C. And even when the R.F.C. itself is considered to be big enough for the direct needs of the Army, there still remains the question of training aviators for purely aerial offensive and defensive, whether that work be undertaken by the Navy, the Army, or a new third Service.

GOVERNMENT WORK OR PRIVATE ENTERPRISE.

Actually the question of whether pilots shall be taught the elements of flying at civilian schools or at Service schools rather resembles the question of whether all aeroplanes and parts shall be produced in the R.A.F. or by private manufacturers. One may admit quite freely that there are in the R.F.C. a number of very capable instructors, but anyone would be unwise who claimed that the average Service instructor is a better schoolmaster than the average civilian instructor.

One would like to see it a recognised principle that

elementary instruction is to be given by private schools, and that all Service schools shall teach advanced flying and nothing else. In such a case one might hope to see the big manufacturing firms re-opening the schools which were closed at the outbreak of war. There has never been better instruction given than at the Bristol and Vickers schools at Brooklands, and, doubtless, if the privately owned schools were given official recognition, one would see other great firms now engaged in aircraft production also opening schools of their own.

Their doing so would add very considerably in effect to the equipment of the R.F.C., because all these big firms would then equip their schools out of their own capital as a commercial proposition, and thus the R.F.C. itself would be left free to equip its schools with machines of types fit for active service, and would not have to trouble about the purchase or maintenance of aeroplanes which are only suited for elementary instruction.

One submits that this aspect of the question also is very well worthy of the consideration of the highest authorities at the War Office as being a method of freeing the hands of a number of officers and men from elementary work which could equally well be done by people who are not fitted physically for military service, or who might otherwise not be of any particular use in the Flying Corps itself.—C. G. G.



A village in German occupation in Flanders. In the left top corner of the patch in the middle may be seen a row of transport wagons. The tracks in the field behind leading to the enclosure show how aerial photography reveals the whereabouts of important positions which might otherwise escape attention.

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TELEPHONE. RICHMOND. 1865.
1866.

COFFIN

The illustration depicts a large biplane in flight, dominating the upper right portion of the frame. Below it, several smaller aircraft are visible in the sky. In the foreground, a boat with two tall masts and sails is positioned on a river. In the background, a multi-arched bridge spans the river, with a building visible on the left bank. The word 'RICHMOND' is printed in large, bold letters across the bottom of the scene. Below it, the telephone number '1865. 1866.' is provided. The word 'COFFIN' is written in small letters near the boat's mast.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE WATCHMAN'S NOTES.

Hè of this title has lately been looking up at life from the depths of a well whence the glimmer of the stars, unseen of those on the earth's surface, may be perceived and the world's bright sky seems merely a dull background. Here is a reason for all retired or cloistered existence—a life, let it not be forgot, full of especial dangers like that in the well, but amply compensated some think.

But from ideas lofty let us descend to earth and think of what occurs when this trick is done too rapidly.

What is the proportion of tractor-'bus to propeller-'bus smashes? Any damage to the engine would seem more likely to be irreparable in the former type, but better than the permanent discontinuation of the pilot which is favoured of propeller types. A constant temptation to shirk the unpleasant work of chronicling disaster due to fire and walk in the steps of the "hide the truth" folk assails me. For once I yield to it—by waiving details and pointing to such accidents as the standing shame of modern aircraft.

Some of the stuffs used for bullet-proof tunics, though not quite all that is claimed for them, might be useful as coverings for petrol tanks. The pressure question seems the root of the danger.

* * *

"The 'lookout' men from their armed eminences outside the city gave the alarm in excellent time."

Perhaps some use could be made of English country church-towers, many of which were provided by our ancestors with loop-holes and alarm bells. But perhaps the humane will suggest that the loop-holes were for the ropes whereby the bells could be rung from outside (by the enemy to gain admittance?) since loops and ropes have a certain affinity.

* * *

Recently asked what part of a Zeppelin I should try to hit if I could only have one shot at her, I rashly and instantly answered "Her control centres," whence rudders and elevators could not be operated. This presumably would not greatly affect her steering unless it caused jamming of one of the organs concerned, as she could rise by engine power and water balance, and use her pro-

pellers at a pinch for lateral direction. Under the circumstances, of course, she would not enter for any chimney sweeping stakes.

* * *

A distinguished Italian, writing on Aerial Defence, suggests that all coastal towns should have undersea sound-wave detectors, similar to the apparatus used on board ships for "hearing" submarines—water being so much better at conducting sounds than is the air. Though musical, I am not deep in acoustics, so cannot state definitely to what degree his point seems made; its practical use may well be quite another matter.

At night the writer in question inclines to mere searchlight intensity, quality being replaced by quantity only if unavoidable. But moonlight washes out electric-light, or nearly.

He further urges the bombing of Vienna. With some big machines Italy now has, able to do 90 an hour and with a radius of action of 800 miles, he considers the job quite possible. -Amen.

T. S. HARVEY.

SOUND LEGISLATION.

Under the Bill which the Home Secretary has presented to the House of Commons to give certain additional powers to his department, police authorities are enabled to pay compensation in the case of the death or injury of persons who assist them during the present emergency, as, for example, ambulance workers, etc., during a Zeppelin raid.

The Bill also empowers the Home Secretary to require reasonable and practicable "welfare" provisions for women workers in other industries than munitions, in regard to which a special department has been constituted.

LEARNING TO FLY.

The versatile pens of Messrs. Harry Harper and Claude Grahame-White have produced yet another volume, entitled "Learning to Fly," which explains in simple language the manner of becoming a "complete airman." A section of the book deals with aviation as a profession and a business. T. Werner Laurie, Ltd., 2s. 6d. net. Copies may be obtained from the Dawson Publishing Company, Ltd., Rolls House, Breems Buildings, at 2s. 9d., post free.—W. L. W.



SOME BEATTY PUPILS.—Top Row: H. W. Sellars, J. d'Allesina, G. T. Barrow, C. F. Brewer, J. M. Drysdale. Second Row: R. L. D. Cuthbert, J. Tjaarda, B. Gaskin, R. W. Stanley, H. L. Smith. Bottom Row: M. C. Mossop, G. A. Thompson, A. B. Drewery, W. G. Edwards and Capt. H. W. G. Jones.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," June 13th, 1916.

WAR OFFICE, June 13th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Commander.—Capt. Lord A. R. Innes-Ker, D.S.O., R. Horse Gds., from a Flying Officer (May 25th).

Flying Officers.—Temp. Sec. Lieut. T. S. Green, attd. N. Staff. R., and to be transfd. to the Gen. List, Sec. Lieut. B. V. S. Smith, R. War. R., and to be sec'd. (May 17th); Sec. Lieut. P. C. Garratt, S.R. (May 20th); Sec. Lieut. J. E. Catherall, R. War. R., from a Flying Officer (Observer), Sec. Lieut. D. W. S. Paterson, S.R., Sec. Lieut. J. C. McMillan, R. Sc. Fus., and to be sec'd., Sec. Lieut. L. C. Angstrom, S.R. (May 22nd).

MEMORANDUM.—H. E. A. Lindsay, late Capt., Res. of Officers, to be temp. Capt. for duty with R.F.C. (March 18th) (substituted for notification in "Gazette" of March 28th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—MIL. WING.—To be Sec. Lieuts. (on prob.)—A. N. Appleford (May 11th); H. J. Whittingham (June 3rd).

TERRITORIAL FORCE.—R.F.C.—HAMPSHIRE AIRCRAFT PARKS.—T. G. Waterhouse to be Sec. Lieut. (June 14th).

ROYAL ENGINEERS.—DEVON (FORTRESS) ENGINEERS.—Sec. Lieut. H. L. P. Higman to be sec'd. for duty with R.F.C. (April 12th).

INFANTRY.—HIGHLAND L.I.—Sec. Lieut. (temp. Lieut.) E. K. Anderson to be sec'd. for duty with R.F.C. (May 12th).

* * *

From the "London Gazette" Supplement, June 14th, 1916.

WAR OFFICE, June 14th.

REGULAR FORCES.—Following Warrant Officer to be Sec. Lieut. for service in the Field:—

INFANTRY.—R.W. SURR. R.—Sgt.-Maj. W. F. Bryant, from R.F.C., and to be sec'd. for duty with the R.F.C. (May 16th).

MEMORANDA.—The undermentioned N.C.Os. and men to be temp. Sec. Lieuts. on probation, for duty with the R.F.C.:—L.-Cpl. D. Clarke, from H.A.C. (May 6th); Cpl. G. H. Wood, from Middlesex R. (May 9th); Cpl. D. P. Cox, from Machine Gun Corps, Pte. L. W. B. Parsons, from H.A.C. (May 15th); Cpl. G. T. Richardson, from R.E., L.-Cpl. C. Murchie, from A.S.C., Pte. F. W. Rennie, from A.S.C. (May 16th).

ESTABLISHMENTS.—R.F.C.—Flight Comdrs.—Temp. Capt. C. A. Hooper, Spec. Res., from a Flying Officer, and to retain his temp. rank while so employed (May 31st); Capt. G. A. Parker, Northern R., from a Flying Officer (Observer) (June 2nd).

Flying Officers.—Lieut. R. H. Marshall, Northern R., Spec. Res., from a Flying Officer (Observer); temp. Lieut. J. M. E. Shepherd, Gen. List, from a Flying Officer (Observer); temp. Sec. Lt. G. A. Thompson, R. Suss. R., and to be transfd. to the Gen. List; Sec. Lt. W. W. Stainer, R. Suss. R., T.F.; Sec. Lt. C. R. Steele, York R., and to be sec'd. (May 22nd); Sec. Lt. (temp. Lt.) O. Stewart, Midd'x R., T.F.; temp. Lt. H. E. Fletcher, Gen. List, from a Flying Officer (Observer); temp. Sec. Lt. S. G. Kingsley, York and Lanc. R., and to be transfd. to Gen. List (May 24th); Lt. G. C. O. Osborne, Canadian Motor Machine-Gun Service; Sec. Lt. (on prob.) G. H. Bonnell, R.A., Spec. Res. (May 25th).

MEMORANDA.—To be temp. Sec. Lts.: for duty with the R.F.C. (June 3rd):—Sgt. R. G. McMurray, from R. Ir. Rif.; Sgt. F. P. Kane, from Can. Loc. Fces.; Sgt. C. G. H. Wadleigh, from Can. Traing. Div.; Sgt. G. H. Raitt, from Can. Engrs.; Sgt. V. B. Allen, from Can. Loc. Fces.; Cdt.-Sgt. J. H. Sayer, from Whitgift Grammar Sch. O.T.C.; Cpl. W. H. Farrow, from R.E.; Cpl. A. G. C. W. Faulkner, from 61st Can. Inf. Bn.; Cpl. H. G. W. Debenham, from Winchstr. Coll. O.T.C.; Cpl. H. G. C. Bowden, from R.E.; Lce.-Cpl. G. Edwards, from 3rd City of Lond. Yeo., T.F.; Gnr. I. V. Pryott, from Mot. Mach. Gun Corps; Dvr. J. S. Davis, from H.A.C., T.F.; Pte. H. E. K. Eccles, from Univ. of Lond. O.T.C.; Pte. L. E. J. Lonnen, from H.A.C., T.F.; Pte. C. G. Baker, from a Prov. Bn., T.F.; Pte. J. V. Aspinall, from Worc. R., Spec. Res.; Pte. F. B. Luget, from 2nd Co. of Lond. Yeo., T.F.; Pte. F. H. Reynell, from 1st City of Lond. Yeo., T.F.; Pte. A. W. S. Molineaux, from S. Staff. R., T.F.; Pte. C. de Frece, from 1st Co. of Lond. Yeo., T.F.; Cdt. A. W. Smith, from Artists Rifles, O.T.C.; Cdt. G. H. Cock, from Artists Rifles O.T.C.

From Inns of Court O.T.C.:—Lce.-Cpl. S. L. Pope, Lce.-Cpl. W. Cochrane, Pte. C. E. Ward, Pte. A. H. Fenton, Pte. F. W. Michell, Pte. A. E. Bowen, Pte. A. J. Fisher, Pte. D. Coates, Pte. P. S. Joyce, Pte. J. L. Tibbetts, Pte. I. E. M. Mackenzie.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lts. (on prob.) confirmed in their rank:—G. L. Faulkner, L. C. Boyd, G. E. Hewson. To be Sec. Lts. (on prob.):—K. A. C. Creswell (April 3rd); A. Brown, J. F. MacKinnon, H. V. Phippen, A. B. Valance, W. M. Kent, L. W. Wood, E. E. Erlebach, H. E. Steinberg, E. M. Milling, L. W. White, N. B. Hair, A. A. McNeil, G. L. Rodwell, H. Stroud, E. P. Lyon, C. L. Milburn, S. C. Maytom, W. H. Douche, N. E. Chandler, V. T. Norminton,

A. Carruthers, H. H. Griffith, H. E. Startin, A. R. Crisp, R. W. Cross, P. G. Robinson, E. D. Abbott, R. A. B. Hall, W. T. Hall, E. H. Wingfield, D. A. Macneill, J. B. Ackroyd, W. B. Wood, C. L. Baldwin, H. A. Howell, B. James, G. F. Hughes, A. N. Bengel, V. H. Collins, A. E. M. Jansen, H. W. Sellers, J. S. Mitchell, G. K. Webb, M. Hughes, R. S. Larkin, W. T. B. Tasker, F. L. Luxmoore, W. D. B. Taylor, W. R. Bowick, G. H. Jacob, R. M. Neill, F. H. Gay, E. G. C. Quilter, A. G. Jarvis, N. E. S. Simon, C. C. White, G. A. Giles (June 3rd).

TERRITORIAL FORCE.—YEOMANRY.—CITY OF LONDON.—Qrmr. and Hon. Lt. L. Newman is seconded for duty with R.F.C. (March 29th).

* * *

From the "London Gazette" Supplement, June 15th, 1916.

WAR OFFICE, June 15th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—FLYING OFFICERS.—Lt. J. H. C. Minchin, Sco. Rif., from a Flying Officer (Observer); Sec. Lt. J. L. P. Armstrong, A.S.C., T.F., from an Asst. Equipmt. Offr.; Temp. Sec. Lt. K. A. Creery, Gen. List, from a Flying Offr. (Observer); Sec. Lt. E. M. Smith, Spec. Res. (May 23rd); Lt. (temp. Capt.) R. H. D. Lee, Norf. R., T.F.; Lt. R. P. Harvey, Norf. R., T.F.; Sec. Lt. S. E. Pither, K.O. Sco. Bord., from a Flying Offr. (Observer); Sec. Lt. (on prob.) R. Sherwell, Linc. R., Spec. Res., and to be sec'd.; Temp. Sec. Lt. T. F. Bassett-Smith, Gen. List; Sec. Lt. G. H. E. Rippon, Spec. Res. (since decd.); Temp. Sec. Lt. A. R. Johnston, Gen. List, from a Flying Offr. (Observer); Temp. Sec. Lt. J. Godlee, Gen. List (May 24th); Lt. E. J. D. Routh, K.R.R.C., Spec. Res., and to be sec'd.; Temp. Sec. Lt. F. G. Saunders, attd. 7th D.G., and to be transfd. to Gen. List (May 27th); Sec. Lt. S. F. Vincent, Spec. Res. (May 28th).

INFANTRY.—R. Fus.—Temp. Sec. Lt. L. Douglas-Crompton relinquishes his commn. on appt. to R.N. Air Serv. (June 4th).

MEMORANDUM.—Lead. Mech. S. R. Axford, from R.N.A.S., to be temp. Sec. Lt. for duty with the R.F.C. (May 22nd).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lt. (on prob.) P. R. Stirling relinquishes his commn. (June 3rd); Sec. Lts. (on prob.) confirmed in their rank:—L. J. Pearce, F. H. Hodgson, H. R. Hawkins, S. F. Vincent, G. H. E. Rippon (since decd.), E. M. Smith. H. B. Neame to be Sec. Lt. (on prob.) (June 2nd).

TERRITORIAL FORCE.—YEOMANRY.—3RD CO. OF LONDON.—Sec. Lt. E. A. de Pass is sec'd. for duty with R.F.C. (May 27th).

* * *

WAR OFFICE, June 15th.

The following dispatch has been received by the Secretary of State for War from General Sir Douglas Haig, G.C.B., Commander-in-Chief of the British Forces in France:—

General Headquarters, April 30th.

Sir,—I have the honour to forward herewith the names of those under my command whom I wish to bring to notice for gallant and distinguished conduct in the field.

I have the honour to be, Sir, your obedient servant,

D. HAIG, General, Commander-in-Chief

The British Forces in France.

STAFF.

Trenchard, Bt. Col. (temp. Maj.-Gen.) H. M., C.B., D.S.O., A.D.C., R. Sc. Fus.

ROYAL NAVAL AIR SERVICE.

Bell, Flight Sub-Lt. S.

Campbell, Flight Lt. W. H. E.

Burne, No. F.4595 Petty Officer W. E.

Hart, No. F.2689 Leading Mechanic C. W.

ROYAL FLYING CORPS.

Brooke-Popham, Maj. (temp. Brig.-Gen.) H. R. M., D.S.O., Oxford and Bucks L.I.

Salmond, Maj. (temp. Brig.-Gen.) J. M., D.S.O., R. Lanc. R. Donaldson-Hudson, Maj. R. C. (T.F. Reserve).

Hynes, Capt. (temp. Maj.) G. B., R.A.

Newall, Major (temp. Lt.-Col.) C. L. N., 2nd Gurkha Rif.

Bourke, Capt. (temp. Maj.) U. J. D., Oxf. and Bucks L.I.

Harvey-Kelly, Capt. (temp. Maj.) H. D., D.S.O., R. Ir. Reg.

MacNeece, Capt. (temp. Maj.) W. F., R. W. Kent R.

Bell-Irving, Capt. M. McB., D.S.O. (Spec. Res.).

Bettington, Capt. A. V. (Spec. Res.).

Cooper, Lt. (temp. Capt. in Army) H. L. (Spec. Res.).

Erskine, Temp. Lt. R., R. Sc. Fus. (Service Bn.).

Grubb, Capt. R. R. de C., 3rd Hrs.

Lewis, Capt. R. E., W.I.R.

Morison, Lt. (temp. Capt.) A. M. (Spec. Res.).

Morton, Lt. (temp. Capt.) A. H., R.F.A.

Tennant, Capt. J. E., S. Gds.

Wynne-Eyton, Temp. Capt. C. S. (Spec. List).

Cunningham, Lt. (temp. Capt.) J. A., R.F.A.

Oxenham, Lt. (temp. Capt.) H. A. (Spec. Res.).

Adams, Lt. A. B. (Spec. Res.).

Child, Sec. Lt. (temp. Lt.) A. J., Lond. R. (T.F.).

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 Milne, Temp. Lt. J. T., Oxford and Bucks L.I.
 Murray, Lt. (temp. Capt.) K. D. P. (Spec. Res.).
 Norman, Temp. Lt. G. H. (Spec. Res.).
 Russell, Lt. H. B., R.F.A.
 Alcock, Sec. Lt. (temp. Capt.) W. T. L. (Spec. Res.).
 Babinington, Sec. Lt. (temp. Capt.) P., Hamps. R.
 Goldsmith, Sec. Lt. (temp. Capt.) N., R.A.
 Henderson, Sec. Lt. (temp. Lt.) M., D.S.O., Sea. Highrs.
 Boyton, Temp. Sec. Lt. G. G. (Spec. List).
 Faber, Sec. Lt. C. (Spec. Res.).
 Hallam, Temp. Sec. Lt. W. A. W., A.S.C.
 Hughes, Temp. Sec. Lt. T. McK., K.R.Rif. C.
 Mackay, Sec. Lt. H. A. D., Hamps. R.
 Medhurst, Sec. Lt. C. E. H., R. Innis. Fus.
 Morris, Temp. Sec. Lt. J. (Spec. List).
 Plenty, Lt. E. P., Manch. R.
 Solomon, Temp. Sec. Lt. J. B., Oxf. and Bucks L.I.
 Thayer, Sec. Lt. F. J. H. (Spec. Res.).
 Vagg, Sec. Lt. H. R., Som. L.I.
 Mead, Qrmr. and Hon. Lt. J.
 Starling, Qrmr. and Hon. Lt. (temp. Capt. in Army) J.
 McCrae, 174 Sgt.-Maj. J.
 Robbins, 263 Sgt.-Maj. H. V.
 Fulton, 1112 Acting Sgt.-Maj. J. (Flight Sgt.).
 Hayward, 255 Acting Sgt.-Maj. W. C. (Flight Sgt.).
 Fitzgerald, 1705 Flight Sgt. M. B.
 Foster, 2292 Sgt. R. G.
 Greenup, 2443 Sgt. B. G.
 Hunt, 2057 Sgt. H. E.
 Mantell, 3599 Sgt. W. G.
 Newton, 217 Flight Sgt. D. H.
 Northcote, 7146 Sgt. R. S.
 Rapley, 1027 Sgt. C.
 Storey, 184 Flight Sgt. J.
 Hepple, 780 Corpl. G. W.
 Isles, 1961 Corpl. A.
 Bell, 4310 1st Cl. Air Mech. G. D.
 Green, 1711 1st Cl. Air Mech. G.
 Lathean, 681 1st Cl. Air Mech. J. A.
 McSwiney, 3799 1st Cl. Air Mech. T. L.
 Shearing, 5853 Corpl. S.

From the "London Gazette," June 16th, 1916.

ADMIRALTY, June 12th.
 R.N.A.S.—Following Prob. Flight Sub-Lieuts. (temp.) to be Flight Sub-Lieuts. (temp.)—K. C. Bass (July 15th); G. Preen (July 18th); W. S. Wilson (July 18th); C. J. Hallinan (Aug. 7th); G. G. Simpson (Aug. 8th); A. B. Helber (Aug. 24th); G. D. Smith (Sept. 6th); H. J. T. Saint (Sept. 17th); C. D. Booker (Sept. 18th); A. O. Brissenden (Oct. 3rd); C. H. B. Jenner-Parson (Oct. 9th); B. A. Trechmann (Oct. 11th); R. Davies (Oct. 13th); M. Lyon (Oct. 20th); J. C. Watson (Oct. 29th); S. T. Edwards, J. W. Hobbs, P. E. Beasley (Oct. 31st); A. G. Woodward, W. Huggan (Nov. 6th); L. Whitworth, J. A. Page, D. M. B. Galbraith (Nov. 15th); D. C. Waylen (Nov. 22nd); H. R. Wambolt, F. C. Armstrong, M. B. Walker, C. E. Moore (Dec. 1st); C. J. Wyatt (Dec. 6th); N. R. Cook (Dec. 7th); J. R. S. Devlin (Dec. 10th); B. N. Harrop, S. V. Trapp, H. H. Arundel, M. Lewis (Dec. 16th); A. Durston (Dec. 21st); S. Burton, S. S. Benson, J. A. Yonge, P. E. Bayley (Dec. 24th); L. S. Breadner (Dec. 28th); M. Hunter (Jan. 17th); J. L. Gordon (Jan. 18th); N. Wallis (Jan. 25th); G. G. R. Fraser (Jan. 31st); D. C. Page (Feb. 8th); H. G. Nares (Feb. 11th); G. F. Browne (Feb. 14th); G. B. Carr (Feb. 19th).

WAR OFFICE, June 16th.

REGULAR FORCES.—ESTABLISHMENTS.—ROYAL FLYING CORPS.—MILITARY WING STAFF OFFICER (Graded for purposes of pay as a Staff Capt.)—Capt. Hon. M. Baring, R.F.C., Spec. Res., from an Asst. Equipment Officer (May 19th).

Flying Officers.—Temp. Lt. H. A. Tweedie, Gen. List, from a Flying Off. (Observer); Sec. Lt. G. W. E. Baker, R. Berks R., and to be sec'd.; Sec. Lt. C. de W. Taylor, 20th Hrs., Spec. Res., from 13th Res. R. of Cav.; Temp. Sec. Lt. H. Pearman, Leins. R., and to be transf'd. to the Gen. List; Sec. Lt. D. S. Johnson, Home Counties Div., Cyclist Companies, Divl. Mt. Troops, T.F.; Sec. Lt. C. H. C. Woollven, Devon R., and to be sec'd.; Sec. Lt. F. H. Hodgson, Spec. Res. (May 27th); Sec. Lt. (on prob.) J. R. Gould, 2nd Regt. K.E. Horse, Spec. Res., and to be sec'd. (May 28th); Lt. W. O. Raikes, E. Kent R., Spec. Res., from a Flying Off. (Observer); temp. Sec. Lt. F. J. Terrell, Som. L.I., and to be transf'd. to the Gen. List; Sec. Lt. R. S. Capon, L'pool R., T.F., from an Asst. Equipmt. Off.; temp. Sec. Lt. A. E. S. Story, Gen. List; Sec. Lt. W. R. S. Wilberforce, K.R. Rif. C., and to be sec'd.; Sec. Lt. H. R. Hawkins, Spec. Res. (May 29th); Sec. Lt. (temp. Lt.) W. H. A. Whitworth, Dorset R., T.F. (May 30th).

Flying Officers (Observers).—Lt. W. R. B. Annesley, R.E., T.F. (Oct. 21st); Lt. R. G. Macnaughton, 6th R. Highrs., T.F. (May 26th); Lt. F. Billings, Manch. R., Spec. Res., and to be sec'd.; Sec. Lt. (on prob.) G. E. Chancellor, R.W. Surr. R., Spec. Res., and to be sec'd. (May 27th); Sec. Lt. E. R. Davis, Worc. R., and to be sec'd. (May 29th); Temp. Lt. C. Fairbairn, Gen. List; Temp. Lt. R. A. Walmsley, A.S.C., and to be transf'd. to the Gen. List;

Lt. G. W. Panter, R. Ir. Rif., and to be sec'd.; Sec. Lt. C. W. Short, Ind. Army Res. of Off.; Sec. Lt. A. T. Rickards, R.A., and to be sec'd.; Sec. Lt. (on prob.) G. Leckie, R.G.A., S.R.; Temp. Sec. Lt. T. S. Howe, Conn. Rang., and to be transf'd. to the Gen. List; Temp. Sec. Lt. H. M. Parsons, Gen. List (May 30th); Temp. Lt. E. P. M. Robinson, N. Lan. R., and to be transf'd. to the Gen. List; Lt. R. Oxspring, Yorks L.I., S.R., and to be sec'd.; Temp. Lt. J. H. F. McEwen, Cam'n Highrs., and to be transf'd. to the Gen. List; Temp. Lt. C. R. Davidson, A. and S. Highrs., and to be transf'd. to the Gen. List; Lt. A. C. Maund, 8th Can. Inf. Bn.; Temp. Sec. Lt. G. F. Westcott, A.S.C., and to be transf'd. to the Gen. List; Temp. Sec. Lt. J. B. Tait, Durh. L.I., and to be transf'd. to the Gen. List; Sec. Lt. S. A. Villiers, R.A., and to be sec'd.; Sec. Lt. H. S. Macneil, R.F.A., S.R.; Temp. Sec. Lt. L. D. Brown, Motor Machine Gun Serv., and to be transf'd. to the Gen. List; Temp. Sec. Lt. M. C. Breese, N. Staff. R., and to be transf'd. to the Gen. List (May 31st).

Asst. Equipmt. Officers.—Temp. Sec. Lt. T. F. G. Strubell, Gen. List (Jan. 31st); Temp. Capt. F. R. Williams, S. Staff R., and to be transf'd. to the Gen. List; Qrmr. and Hon. Lt. L. Newman, City of London Yeo., T.F.; Sec. Lt. J. A. O'Brien, Lond. R., T.F.; Sec. Lt. (on prob.) R. L. Branker, S.R. (March 29th); Sec. Lt. (on prob.) K. A. C. Creswell, S.R. (April 4th); Sec. Lt. C. H. Whittington, S.R. (April 11th); Sec. Lt. (on prob.) H. W. Mills, S.R. (April 12th); Temp. Sec. Lt. J. H. Mackie, Gen. List (May 20th); Sec. Lt. L. J. Pearce, S.R. (May 30th); Temp. Sec. Lt. A. S. Ellerton, Gen. List; Temp. Sec. Lt. R. Cook, Gen. List (June 1st).

MEMORANDUM.—L.-Cpl. C. A. Sutcliffe, from Rossall Sch. O.T.C., to be temp. Sec. Lt. for duty with the R.F.C. (June 3rd).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—ROYAL FLYING CORPS.—Sec. Lts. (on prob.) are confirmed in their rank:—C. H. Whittington, W. E. Roe, G. B. Redgrave to be Sec. Lt. (June 5th). To be Sec. Lts. (on prob.):—A. J. M. Ross (May 17th); H. G. Gibbs (May 22nd); H. B. Dresser, T. G. Mellanby (May 23rd).

* * *

From the "London Gazette" Supplement, June 17th, 1916.

WAR OFFICE, June 17th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Flight Comdrs.—From Flying Offrs., and to be temp. Cpts. whilst so empld.:—Lt. S. H. B. Harris, Spec. Res. (June 2nd); Temp. Sec. Lt. J. Callaghan, Gen. List (June 5th).

Flying Offrs.—Sec. Lt. E. A. de Pass, 3rd Co. of Lond. Yeo., T.F. (May 27th); Sec. Lt. J. B. E. Crosbie, Worc. R., Spec. Res., and to be sec'd.; Sec. Lt. D. S. Cairnes, Rif. Brig., and to be sec'd.; Temp. Sec. Lt. G. B. J. Firbank, Welsh R., and to be transf'd. to Gen. List; Sec. Lt. W. E. Roe, Spec. Res. (May 31st); Capt. C. R. Tidswell, 1st Dns.; Temp. Sec. Lt. R. J. Sanceau, R.A., and to be transf'd. to Gen. List (June 2nd).

Flying Offr. (Observer).—Lt. (temp. Capt.) E. E. N. Buftney, R. Berks R., and to be sec'd. (June 1st).

Balloon Offrs.—Lt. P. G. Bateman, Lond. R., T.F. (May 21st); Sec. Lt. L. F. G. Spencer, Sea. Highrs., Spec. Res. (May 22nd).

Asst. Equipmt. Offr.—Sec. Lt. R. W. B. Billingham, Spec. Res. (June 13th).

MEMORANDA.—To be temp. Sec. Lts. for duty with the R.F.C.:—Capt. J. L. Trollope, from R.E.; Cpl. G. F. Lines, from No. 1 Res. M.T. Depot; Cpl. C. C. Gibbs, from 3rd City of Lond. Yeo., T.F.; Gnr. A. C. Day, from Suss. R.G.A., T.F.; Spr. E. P. Wilmot, from Australian Engrs. From Inns of Court O.T.C.:—Pte. F. A. H. F. Perks-Morris, Pte. R. W. Chappell, Pte. F. M. Capiter (June 17th).

To be temp. Sec. Lts. (on prob.):—L. G. Wilson, C. Hugo (June 5th); H. F. Prytherch (June 6th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—J. H. Simpson, from Lieut., attd. 5th Can. Inf. Bn., to be Lt. (May 1st). The following Sec. Lts. (on prob.) are confirmed in their rank:—C. St. G. Campbell, R. L. Branker, H. W. Mills. R. W. B. Billingham to be Sec. Lt. (June 13th). To be Sec. Lts. (on prob.):—H. E. L. Pilbrow (May 11th); G. P. Achurch (May 22nd); M. Sharp (June 3rd).

* * *

From the "London Gazette" Supplement, June 19th, 1916.

WAR OFFICE, June 19th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Wing Commander.—Maj. R. E. T. Hogg, C.I.E., 38th Horse, Ind. Army, from a Squadron Commander, and to be temp. Lieut.-Col. whilst so employed (May 30th).

Flight Commanders.—(From Flying Officers, and to be temp. Cpts. whilst so employed).—Sec. Lieut. J. R. McCrindle, Gord. Highrs., T.F. (May 9th); Lieut. G. C. de Dombasle, R. Can. R. (May 17th).

Equipment Officers.—Temp. Lieut. (temp. Capt.) M. D. Methven, Lond. R., T.F., from a Flight Commander (April 26th); Sec. Lieut. H. B. T. Childs, Spec. Res., from an Asst. Equipment Officer, and to be temp. Capt. whilst so employed (June 1st).

Flying Officer.—Lieut. A. P. Selwyn, Ind. Army Res. of Officers (since deceased) (May 16th).

Asst. Equipment Officer.—Temp. Sec. Lieut. (on prob.) S. W. Cooper, Machine-Gun Corps, and to be transf'd. to Gen. List (May 30th).

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MEMORANDA.—Temp. Sec. Lieuts. to be temp. Lieuts. for duty with the R.F.C.:—D. D. Drury, C. A. Gladstone, B. P. Greenwood (now temp. Capt.) (April 15th); Sec. Lieut. J. Clark, h.p. list, retires on ret. pay (June 20th); Sec. Cl. Air Mech. M. L. Horn, from R.F.C., to be temp. Sec. Lieut. for duty with the Mil. Wing of that Corps (May 27th). To be temp. Sec. Lieuts. for duty with the R.F.C.:—Pte. R. G. Hutchinson, from 1st Glamorgan Yeo., T.F. (May 18th); Sgt. G. W. Hall, from 17th Res. Bn., Canadian Exp. Force (June 17th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lieut. E. H. McLachlin (previously incorrectly described as G. H. McLachlin) relinquishes his commn. (March 28th); Sec. Lieut. (on prob.) A. M. Thomas is confirmed in his rank. To be Sec. Lieuts. (on prob.):—P. Adams (May 22nd); W. V. Bevon (June 7th).

INFANTRY.—HIGH. L.I.—Temp. Sec. Lieut. A. R. Johnston, from General List, to be Sec. Lieut. (June 20th), but with seniority from September 23rd, 1914, and to remain sec'd. for duty with R.F.C. (Mil. Wing).

TERRITORIAL FORCE.—YEOMANRY.—OXFORD.—Sec. Lieut. A. L. Clow is sec'd. for duty with R.F.C. (May 30th).

INFANTRY.—LOND. R.—Sec. Lieut. J. A. O'Brien is sec'd. for duty with R.F.C. (March 29th).

NAVAL.

The following appointments have been made in the Royal Naval Air Service:—

JUNE 14th.—Mr. E. A. Wadsworth granted a temp. commission as sub-lieut. R.N.V.R., to date June 10th.

Mr. R. D. Hallam granted a temp. commission as sub-lieut. R.N.V.R., with seniority June 12th, and appointed to "President," additional, for R.N.A.S.

JUNE 16th.—Messrs. L. G. Steel, P. H. Ingham, and M. S. Walker, all entered as Proby. Flight Sub-Lieuts., seny. of June 18th, and appointed to "President," for R.N.A.S.

The following have been entered as Proby. Flight Sub-Lieuts. (temp.), seny. of June 18th, and appointed to "President" for R.N.A.S.:—V. C. E. Marten-Gwilliam, E. P. Will, V. C. Holyman, E. McTurk, E. A. Bolton, E. B. Gammon, F. C. Walker, A. R. Jones, E. S. Arnold, S. F. Ingram, D. F. W. Baden-Powell, N. G. Hodson, E. Pierce, W. J. de Salis, T. R. Swinburne, J. S. May, A. S. Mather, D. I. Davies, G. H. Stephens, J. S. Wright, and E. W. Keesey.

Proby. Flight Sub-Lieut. (Temp.).—J. A. Nash, granted a temp. commission as Sub-Lieut. (R.N.V.R.), seny. of June 14th, and appointed to "President," for R.N.A.S.

Messrs. A. A. N. Haywood, D. G. McGregor, A. C. Stevens, and G. N. Jackson, all granted temp. commissions as Sub-Lieuts. (R.N.V.R.), seny. of June 14, and to "President," for R.N.A.S.

JUNE 17th.—Temp. commissions as Lieut. and Sub-Lieut. (R.N.V.R.) respectively have been granted to S. C. H. Davis and J. M. Stuart, seny. of June 15th, and both appointed to "President," addl., for R.N.A.S.

JUNE 20th.—Mid. R. V. Goddard promoted to actg. sub-lieut., R.N., and graded flight sub-lieut., to date May 15th.

Mr. B. Grant granted a temp. commission as sub-lieut., R.N.V.R., with seniority June 17th.

A.B. G. H. K. Bone granted a temp. commission as sub-lieut., R.N.V.R., with seniority June 16th.

Mr. F. V. Cowell entered as temp. sub-lieut., R.N.V.R., with seniority June 17th.

* * *

YOUNG—CURTISS.—On June 14th, very quietly, by special licence, at the Church of Our Lady of Compassion, Willesden, by the Rev. Dr. Herbert Vaughan, Douglas George Young, Flight-Commander, R.N., second son of Robert and Mrs. Young, Kobe, Japan, to Pauline Elizabeth, youngest daughter of the late John Curtiss and Mrs. Curtiss, of Cornwall, Ontario, and of Liverpool.

* * *

The marriage arranged between Flight Commander Charles D. Breese, Royal Navy, and Miss Molly Tweedy will take place quietly at St. Peter's Church, Dyrham, on Saturday, July 1st. No invitations will be issued, but all friends will be welcome at the church and afterwards at The Cottage, Dyrham.

MILITARY.

G.H.Q. COMMUNIQUÉS.

JUNE 18th, 10.7 p.m.—In better weather conditions yesterday a great deal of flying was done, and there was a marked increase in the activity of hostile aircraft.

One of our machines attempted to intercept a hostile reconnaissance consisting of eight machines, driving one down close behind the German trenches. Our machine, trying to cut off the remainder, engaged the rear machine and drove it down a few miles behind the enemy's lines.

In all, there were 30 combats in the air, but no other decisive results. Except for this aerial activity, the last 24 hours have been quiet.

JUNE 19th, 10 p.m.—The chief point of interest to record is the aerial report of yesterday, when there was a marked increase in the work undertaken by hostile aircraft. In all, there were 27 combats in which the enemy suffered the following losses:—

One hostile machine was brought down in our lines near Doullens and the occupants were made prisoners.

Two of our fighting aeroplanes encountered two Fokkers in the vicinity of Lens. One of the hostile machines was driven down damaged. The other was shot down and crashed to earth from 4,000 ft.

In other fighting in the air two other German machines were driven down in a damaged condition, and one was brought down near Wingles.

[Can this be a mis-transmission for: "Was brought down wingless"?—Ed.]

Hostile reconnaissances which crossed the lines in force were attacked and dispersed by our aeroplanes. One of our pilots reports seeing two hostile machines hit by anti-aircraft fire.

As the results of combats in the air two of our machines were brought down in the enemy's lines.

* * *

The Secretary of the War Office made the following announcement regarding the operations on the Eastern frontier of Egypt on June 15th:—

The General Officer Commanding-in-Chief in Egypt reports that a successful air attack was carried out by us on June 13th against the enemy camps and aerodrome at El Arish and an enemy camp at Bir Mazar, all of which were effectively bombed. A Fokker which attacked our machines was engaged and driven down.

On the same day a hostile aeroplane attacked Serapeum but did no damage, and caused only three minor casualties. After this attack the machine attempted to drop bombs on ships in the Suez Canal, but without result, and was eventually driven off by our gunfire.

* * *

THE CASUALTY LIST.

Reported June 14th.

WOUNDED.—Walker, Sec. Lieut. R. V., Connaught Rangers, att'd. R.F.C.

Reported June 15th.

KILLED.—Stubbs, Sec. Lieut. R. A., R. Munster Fus. and R.F.C.

WOUNDED.—Clarke, Capt. A. C., Duke of Cornwall's L.I. and R.F.C.

WOUNDED.—R. Flying Corps.—Nicholson, 23322 2nd Cl. Air Mech. C. R.; White, 23400 2nd Cl. Air Mech. S. J.

Reported June 16th.

WOUNDED.—Russell, Lieut. W., R.E., att'd. R.F.C.

Reported June 17th.

REPORTED PRISONER IN OFFICIAL LISTS FROM GERMAN GOVT.:—PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONER.—R.F.C.—Jones, 2104 Sgt. E.

Reported June 20th.

KILLED.—Thouless, Sec. Lieut. A. C., Norfolk Regt., and R. Flying Corps.

PREVIOUSLY REPORTED MISSING, NOW REPORTED WOUNDED AND PRISONER OF WAR.—Goodson, Sec. Lieut. A. R. L., London Regt. and R. Flying Corps.

* * *

Sec. Lieut. Reginald A. Stubbs, Royal Munster Fusiliers, attached R.F.C., was killed on June 8th in landing, after making an early morning air patrol. When the war broke out he had completed his second year at Keble College, where he was studying for holy orders. He immediately joined the University and Public Schools Corps, and shortly after was promoted to be corporal. Finding that there was no likelihood of the Corps going on active service at an early date he obtained a commission in the Royal Munster Fusiliers. Last November he joined the Royal Flying Corps, and gained his "wings" in March. He flew over to France with his squadron only 10 days before he was killed.

* * *

Second Lieutenant A. C. Thouless, Norfolk Regiment and Royal Flying Corps (killed in action), was gazetted temporary second lieutenant in May, 1915.

* * *

POWELL.—Killed in action May 31st, Lieut. Lindsay Carlton Powell, Royal Scots Fusiliers and R.F.C., the beloved son of Henry James and Margaret Powell, of Kenmure, 7, Barrington Road, Brixton, S.W., in his 22nd year.

DANN—FENWICK.—On June 11th, at St. Margaret's Church, Bolton, Lieut. A. J. Dann, Loyal North Lancs Regt., attached R.F.C., to Beryl Marguerite Fenwick, Montreal.

* * *

MARTIN—STEBBINGS.—On June 12th, at St. Mary's Church, Redenhall, Harleston, by Revd. Dr. Inskip, LL.D., Sec. A. M. Harry James Martin, Royal Flying Corps, son of Mr. and Mrs. H. Martin, Camden House, Bungay, Suffolk, to Mary, only daughter of Mr. and Mrs. George Stebbings, Bank House, Harleston, Norfolk.

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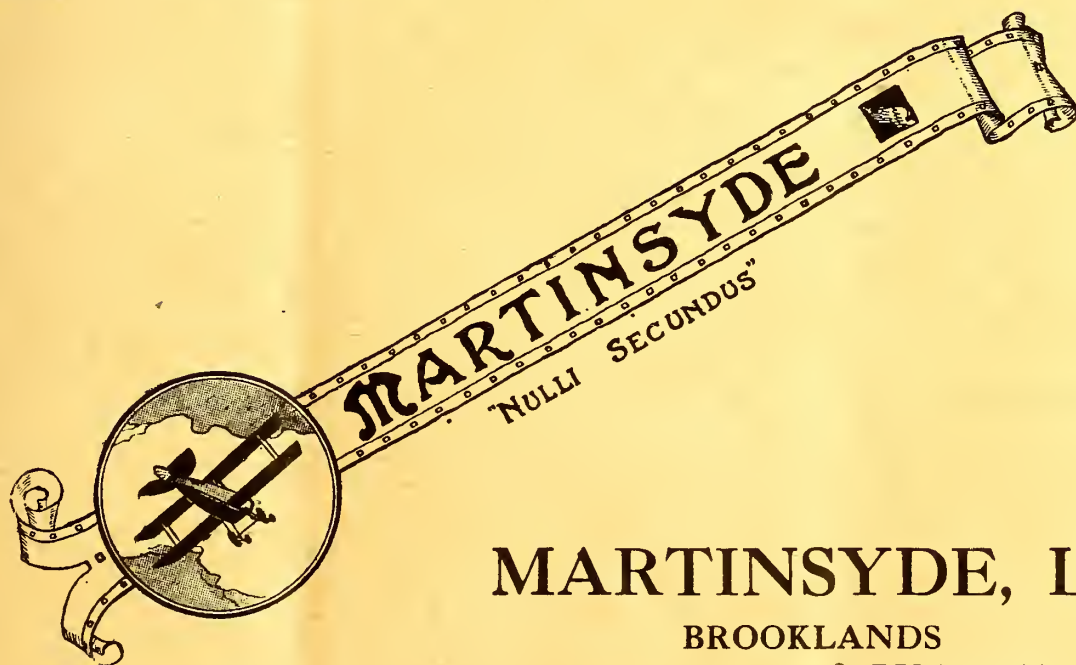
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SHUMAKER—ROXBURGH.—On the 17th June, at Marylebone Presbyterian Church, Upper George Street, Bryanston Square, W., by the Rev R. C. Gillie, M.A., Captain Floyd N. Shumaker, R.F.C., to Agnes Carlyle Roxburgh (Nancy), daughter of Mr. and Mrs. T. Y. Roxburgh, 20, Exeter Road, Brondesbury.

* * *

AUSTIN-SPARKS.—On the 18th inst., at Wickham Lodge, Cumberland Road, Kew Gardens, the wife of Captain R. H. Austin-Sparks, Royal Flying Corps—a son.

* * *

The engagement is announced of Second Lieutenant W. Witcomb Stainer, 4th Bn. The Royal Sussex Regt. and Royal Flying Corps, only son of Mr. and Mrs. W. J. Stainer, of Hove, Sussex, to Beata Gwenllian, younger daughter of Mr. and Mrs. W. Kilmister, of Edinburgh and Brighton, Sussex.

* * *

An engagement is announced between Ivan Mario Mackenzie, Sec. Lieut. R.F.C., son of Mr. and Mrs. Evan Mackenzie, of Genoa, Italy, and Margery, elder daughter of Mr. R. J. Lawrence (of the Inner Temple) and Mrs. Lawrence, of Eversleigh, Wolverhampton.

* * *

An engagement is announced between Lieut. Graham Shurmur Bush, R.F.C., youngest son of Mr. and Mrs. Philip Bush, Old Manor House, Keynsham, Somerset, and Mildred Sturge Hitchens, only daughter of Mr. and Mrs. Ernest Hitchens, of "Abbotsford," Wadham Gardens, London, and Yate, Glos.

An aeroplane accident of a peculiar nature was reported on June 16th, when a military biplane got out of control at 5,000 ft. through engine failure and fell within a few feet of the ground before the pilot regained any degree of control. The machine finally hit a field and smashed up, but the pilot and observer escaped serious injury.

* * *

Sir Charles Wakefield, Lord Mayor of London, who recently paid a visit to the front, made the following remarks on aircraft to a "Daily Telegraph" representative:—

"I was shown one of the most up-to-date aerodromes that we have over there, and there was not the slightest doubt that what I saw there was a vast improvement on what existed earlier in the war. It was evident to even a casual observer that Great Britain and her Allies are certainly not behind the enemy in this arm of offensive warfare."

[More congratulations to the officers who now control matters at the War Office.—Ed.]

* * *

The "Daily Telegraph" correspondent at British Headquarters writing on June 18th says:—"Here and there the absence of his (the enemy's) stationary balloons, which as a rule survey our lines, has been remarked, and very few German aeroplanes have ventured upon flights over our side of the country."

[This should be compared with the G.H.Q. statement concerning reconnaissance in force.—Ed.]

FRANCE.

OFFICIAL COMMUNIQUÉS.

JUNE 17th.—On the night of June 16th three enemy aeroplanes bombarded the region of Dunkirk. Nobody was injured and little damage was done.

At 8 o'clock in the evening Bar-le-Duc (20 miles south-west of St. Mihiel) was bombarded by enemy machines. There were four killed and some 15 wounded among the civilian population.

The town was again bombarded in the course of this afternoon. The bombs dropped caused slight material damage, and some persons were wounded.

Late in the evening of the 16th a number of bombs were dropped upon Pont-à-Mousson by German aeroplanes without any result.

On the night of the 16th one of our bombarding squadrons dropped 29 4.7 in. shells and four 6 in. shells on the railway stations of Longuyon, Montmédy, and Audun-le-Roman (these three stations are on the Sedan-Metz Railway).

JUNE 18th.—On the Verdun front our aviators fought a number of engagements with German machines sent to bombard Bar-le-Duc. In the course of these engagements two enemy aeroplanes were brought down, one near Malancourt (west of the Meuse), the other near Samogneux (east of the Meuse). Three other German machines caught by machine-gun fire at close quarters were compelled to come down vertically—the first at Fresnes (south-east of Verdun), the second at Septsarges (north of Malancourt), the third in the outskirts of Béthincourt.

In Lorraine four of our machines gave battle to four Fokkers above the enemy lines. Two of the latter were brought down to the east of Bezanges (north-east of Nancy), one of them falling in flames. One of our machines was compelled to alight.

Our bombarding squadrons have also shown great activity. Twenty-four shells were dropped on enemy depôts near the Semide railway station (Vouziers district), 20 big calibre shells on factories at Thionville (north of Metz), where two explosions

were noted, and a score of projectiles on the aviation establishments at Etain (north-east of Verdun) and Tergnier.

In the course of the night enemy machines dropped bombs on Pont-à-Mousson, Nancy, and Baccarat. The material damage was insignificant. One person was wounded at Baccarat.

JUNE 19th.—During the night two of our squadrons successively bombarded the barracks and the railway station of Vouziers (a railway junction in Champagne), where the movements of trains had been reported. One squadron dropped 36 large calibre bombs and the other 25.

An enemy air squadron dropped numerous projectiles on a village to the south of Verdun, where there was a camp of German prisoners. Several of the latter were killed or wounded.

* * *

It is reported from Paris that on June 17th at Pantin a collision occurred between two aeroplanes at a height of about 6,000 ft. The two machines crashed to the ground, but both aviators miraculously escaped uninjured.

* * *

The "Matin" states that the German "star turn," Capt. Böcke, who shared with Lieut. Immellmann the distinction of being Germany's record air fighter, has been brought down by the Adjutant-aviateur Roger Ribière on the Verdun front.

Böcke claimed to have brought down 18 of the Allies' machines, and for destroying two French aeroplanes in one day was promoted to captain last month. He was long ago awarded the Iron Cross and recently the Order of Merit also for his exploits.

GERMANY.

OFFICIAL COMMUNIQUÉS.

JUNE 13th.—Near Podhauze, west of the Galician battle-front, a Russian aeroplane was brought down by a German aviator in an air fight, the pilot and the observer, a French officer, being captured. The aeroplane is in our hands.

JUNE 14th.—German aviators in the past few days have undertaken far-reaching enterprises against railways behind the Russian front. Several troop trains were stopped and railway buildings were destroyed.

JUNE 17th.—The aerial activity on both sides was considerable. Our air-squadrons abundantly pelted with bombs objects of military importance at Bergues (French Flanders), Bar-le-Duc, and in the regions of Dombasle (north of Lunéville), Einville (north-east of Lunéville), Lunéville, and Blainville (south-east of Lunéville).

JUNE 18th.—The air attack on military works at Bar-le-Duc was repeated.

A French biplane was brought down and destroyed by our anti-aircraft guns west of Lassigny (west of Noyon).

In the district of Bezanges-le-Grand, south of Château Salins, Lieutenant Wintgens brought down his sixth, and Lieutenant Hohendorf his fifth, enemy aeroplane. The occupants of one machine were killed.

On Friday evening the burning debris of a French biplane, which had been defeated in an air fight, was observed north-east of the Hesce Wood (west of Verdun).

JUNE 19th.—A French aeroplane was shot down in the west of the Argonne.

A German air squadron attacked the railway station, military works, and factories at Baccarat and Raon l'Étape (south-east of Baccarat, both on the Upper Meurthe).

Two English biplanes were brought down in the course of air fights—one near Lens and the other north of Arras. In each case the enemy aviators were killed.

* * *

In the Berne newspaper "Bund" there appears a description of Germany's new airship. This airship has not long left the Zeppelin works at Friedrichshafen, and it was seen a few days ago flying over Lake Constance. The length is declared to be 780 ft., as against the customary 540 ft., and the cubic contents are nearly 2,000,000 ft., as compared with previous capacities of from 700,000 ft. to 800,000 ft.

Instead of two gondolas this new Zeppelin has four, and it carries torpedoes, machine-guns, and several tons of bombs. The gondolas and other vital parts of the cruiser are armoured.

According to the "Bund," the new craft is fish-shaped, and the steering mechanism is quite different from that of the ordinary Zeppelin. The gondolas are disposed one at each end, and the others side by side under the body of the airship. The balloon is divided into twenty-four compartments. The motors, of from 3,000 to 4,000 horse-power, give the aerial cruiser a speed of about sixty miles an hour. The complement of this super-Zeppelin is from thirty to forty men, and even with this extra weight, and its load of machine-guns, explosives, etc., it is easier to steer than the former type. It ascends with a remarkable rapidity and can speedily attain a height of 12,000 ft.

This super-Zeppelin is intended, says the "Bund," to be a marine air cruiser, and has been built in view of attacks against enemy warships. As it flew over Friedrichshafen for the first time the only way to realise its enormous bulk was to think of a walking-stick held above a toy village.

[The foregoing description of the new Friedrichshafen airship

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may be inaccurate in detail, but it tallies in many respects with reliable information from other sources.—Ed.]

RUSSIA.

OFFICIAL COMMUNIQUÉ.

JUNE 16th.—A hostile aeroplane has dropped bombs on Tarnopol.

AUSTRIA.

OFFICIAL COMMUNIQUÉS.

JUNE 14th.—Our seaplanes again attacked the railway and the military buildings at San Giorgis, Dinogara, and the inner harbour at Grado.

JUNE 15th.—Our aviators dropped bombs on the railway station at Verona and Padua.

JUNE 16th.—A squadron of seaplanes successfully bombarded on the night of June 15th the railway station and the precincts of Porto Gruaro and Latisana, the railway line between Porto Gruaro and Latisana, while a second squadron attacked the railway station and military works at Motta di Livenza, and a third squadron the enemy positions near Monfalcone and other places. Several effective hits were observed in the railway stations and military positions and fires were seen to break out. Despite a heavy bombardment all the aircraft returned safely.

ITALY.

OFFICIAL COMMUNIQUÉS.

JUNE 14th.—During the night of the 11th inst. some enemy seaplanes dropped bombs on Venice, causing very slight damage. One woman was killed and four other civilians injured.

At dawn on the same day our torpedo-boats approached a place on the Istrian Peninsula, and after carrying out a reconnaissance bombarded an important point near Parenò. Our torpedo-boats were persistently but vainly attacked on their return journey by five enemy seaplanes.

On the morning of the 12th inst., in the Upper Adriatic, one of our seaplanes after repulsing an attack by an enemy machine dropped bombs on the military establishments near Trieste, in spite of the lively fire of the Austrian anti-aircraft batteries.

JUNE 15th.—Squadrons of Caproni aeroplanes bombarded with excellent results the railway station of Mattarello (Lagarina Valley) and encampments at the junction of the Nos and Campomulo Valleys (on the Aslago Plateau). Enemy aeroplanes dropped bombs on Padua, Giorgio di Nogaro (north of Grado), and Porto Rosega (near Monfalcone). Two persons were wounded, and the damage was very slight.

JUNE 17th.—Hostile aircraft dropped bombs on various points of the Venetian Plain and on the town of Padua, killing three persons and wounding eight.

Last Thursday six of our Caproni aeroplanes bombarded the railway station of Mattarello, in the Adige Valley (five miles south of Trent).

On Friday a squadron of 37 Capronis and Farmans dropped 160 bombs and 60,000 arrows on enemy encampments north of Asiago and in the Nos Valley. The whole squadron returned safely. Two hostile machines were brought down.

BULGARIA.

OFFICIAL COMMUNIQUÉS. (via Amsterdam)

JUNE 14th.—On Saturday six enemy ships approached the mouth of the Mesta about a quarter past 12. In the afternoon four of our aeroplanes attacked the ships with bombs and forced them to retire at full speed in the direction of Thasos. Our aeroplanes, although vigorously fired at, returned safely.

[The machines would be of Austrian or German make and would probably have Teuton pilots, as no Bulgarian had ever been proved a capable pilot before the war.—Ed.]

JUNE 17th.—Lately the British and French have been destroying our harvest by dropping bombs. On Friday four French aeroplanes dropped bombs of special make in the neighbourhood of the villages of Zinelli and Tarashmanli, and the mouth of the Mesta, with the object of setting fire to the fields. They caused several fires, which were immediately extinguished.

Yesterday evening an enemy aeroplane dropped five bombs on Monastir, wounding two civilians slightly and causing insignificant damage. Other enemy airmen dropped bombs on Valandovo, Dedeli, and Doiran, without result.

Our aviators dropped bombs on enemy bivouacs at Kara-Sinantzi, Smol, Kalinova, and Mihalova, and the camp and aerodrome at Kukush. All our aviators returned safely.

BELGIUM.

It is reported via Holland that a Zeppelin was wrecked by the wind at Chatelineau in South Belgium, on Whit Monday.

The Zeppelin is said to have been dashed against the telegraph wires and a gondola exploded. Eighteen men were aboard, two being severely wounded, while others were slightly wounded. The Zeppelin, which was of a large size and of modern type, was destroyed.

[Belgian reports are seldom thoroughly reliable.—Ed.]

GREECE.

It is reported from Salonika that French aviators bombed Fort Rupel on June 12th. This was the fortress recently seized by the Bulgarians from the Greeks. The aviators are of the opinion that they did considerable damage.

* * *

It is reported that on June 15th, 16th and 17th enemy aviators bombed both banks of the Vardar River, in the hope of finding a

billet in the French camps, while Allied aeroplanes carried out several useful long-distance raids.

The French have been dropping bombs on Monastir, Kuprulu, Petrich, and Doiran. British aviators from Thasos raided Bulgarian territory near Xanthi and Porto Lagos, and made a number of direct hits on a large enemy camp at Coban Mah, near the Mesta River. One result of the bombs was that large fires broke out among the crops.

The Allied seaplanes made long oversea flights entirely unescorted. Some of them had breakdowns and alighted near an island, where a searching destroyer sent out to look for them picked them up.

HOLLAND.

It is reported from Amsterdam that on June 13th seven large German warships, preceded by a Zeppelin, were seen passing the Frisian Islands at 6.30 p.m., going in a westerly direction.

DENMARK.

It was reported from Copenhagen that a furious fight took place on June 15th between a British submarine and a German seaplane outside Ystad, off the coast of Scania.

* * *

"Politiken" (Copenhagen, June 19th) states that the crew of the Danish steamer "La Cour," which arrived that day, report that they met a British submarine about noon on the 18th in the Kattegat, between Anholt and Læsø. Two German seaplanes appeared and dropped bombs, but without hitting the submarine. The submarine then fired at the seaplanes, one of which was shot down and the other put to flight.

"Politiken" also states that on Sunday afternoon two Zeppelins passed over the Sound and were seen in the Kattegat going very slowly. They were assumed to be searching for British submarines. The Danish schooner "Edith," on a voyage to Raumo with a cargo of contraband, was chased by one of the Zeppelins, but escaped inside Swedish waters.

TURKEY.

OFFICIAL COMMUNIQUÉ.

JUNE 15th.—On Sunday last our aeroplanes attacked with bombs and machine-guns an English camp on the Suez Canal, near Reman and Kantara, and caused great disorder. They also attacked a British seaplane, and forced it to return to the mother ship.

GERMAN EAST AFRICA.

The Belgian Colonial Minister has just issued a communiqué with regard to a recent action of Belgian troops in German East Africa, which contains the following:—

At Lake Tanganyika the Aviator-Lieutenants Behaeghe and Collignon, who ascended in a waterplane, flew over the German port of Kigoma on June 10th, and bombarded the German gunboat "Graf von Goetzen." Two bombs hit their projective, and inflicted serious damage on that vessel.



Courtesy N. Y. Herald.

An American Comment on Aviation Insufficiency.

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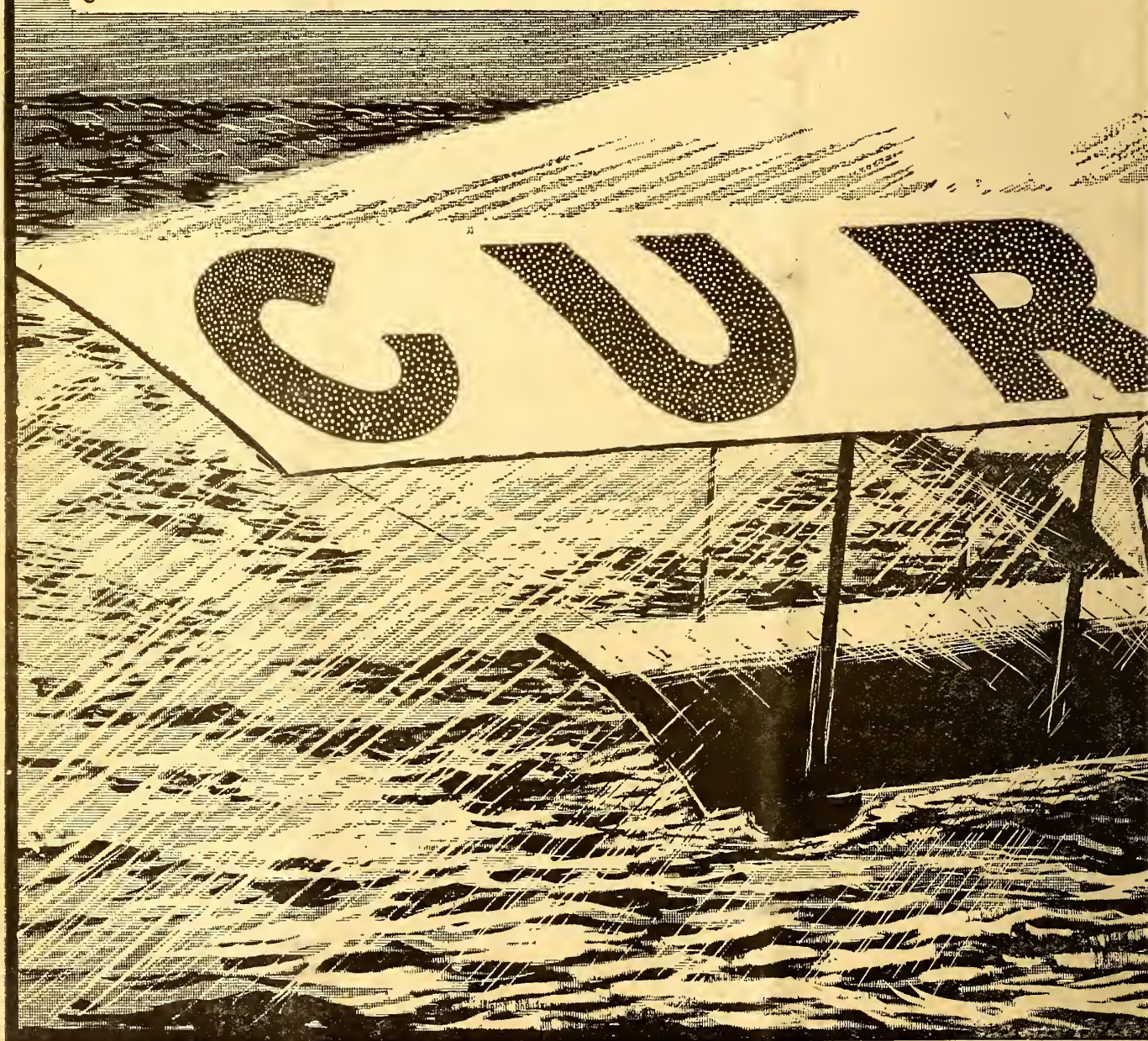
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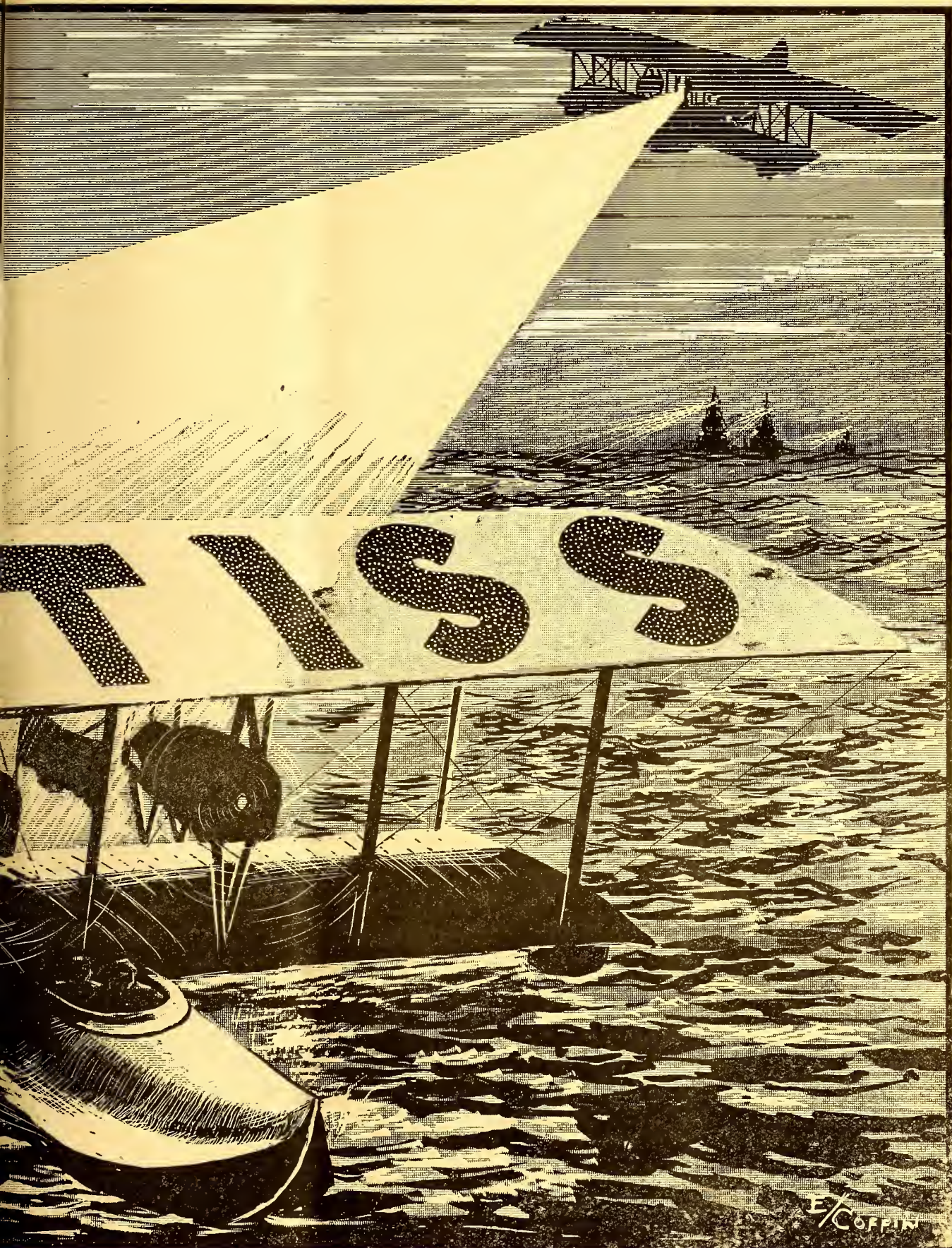
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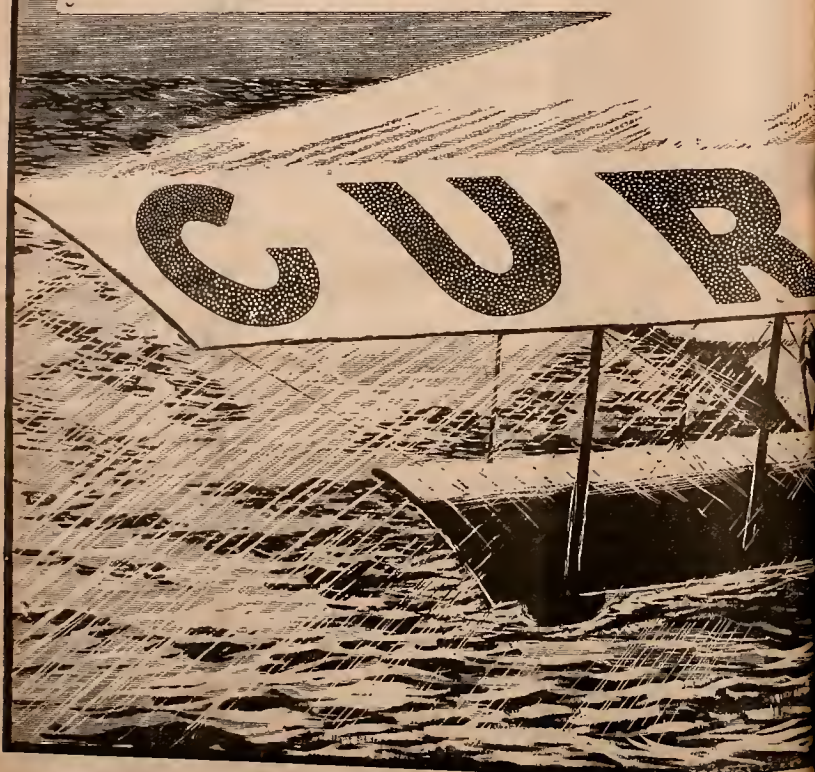
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THE WRIGHT PATENTS

The following abstract of the evidence prepared by the late Wilbur Wright in February, 1912, for the long-fought patent action in America is published by kind permission of Mr. Griffith Brewer, the principal of the British Wright Company, Ltd. :—

My brother and I became seriously interested in the problem of flight in 1899, a little more than twelve years ago. Some three years before this the death of Lilienthal had brought the subject to our attention and led us to make some inquiry for books relating to flight. But the only serious books we found were by Professor Marey, and these related to the mechanism of bird flight rather than human flight.

We knew that men had by common consent adopted human flight as the standard of impossibility. Our own growing belief that men might nevertheless learn to fly was based on the idea that, while thousands of creatures of the most dissimilar bodily structures, such as insects, fishes, reptiles, birds, and mammals, were every day flying through the air at pleasure, it was reasonable to suppose that men also might fly. Of course, there might be, and doubtless would be, many serious difficulties to be overcome, but we thought that by learning what these difficulties were and finding methods of overcoming them, the problem of human flight might be solved, and we thought that probably the cheapest and best way to take up the subject would be to acquaint ourselves with the troubles which others had met in attempting to solve the problem.

We accordingly decided to write to the Smithsonian Institution and inquire for the best books relating to the subject. In response to our inquiry we received a reply recommending Langley's "Experiments in "Aerodynamics," Chanute's "Progress in Flying Machines," and the "Aeronautical Annuals" of 1895, 1896, and 1897. These last were edited by James Means, giving reports of efforts being made to solve the flying problem. The Smithsonian also sent us a few pamphlets extracted from their annual reports, containing a reprint of Mouillard's "Empire of the Air," Langley's "Story of Experiments in Mechanical Flight," and a couple of papers by Lilienthal relating to "Experiments in Soaring."

When we came to examine these books we were astonished to learn what an immense amount of time and money had been expended in futile attempts to solve the problem of human flight. Contrary to our previous impression, we found that men of the very highest standing in the professions of science and invention had attempted the problem. Among them were such men as Leonardo da Vinci, the greatest universal genius the world has ever known; Sir George Cayley, one of the first men to suggest the idea of the explosion motor; Professor Langley, secretary and head of the Smithsonian Institution; Dr. Bell, inventor of the telephone; Sir Hiram Maxim, inventor of the automatic gun; Mr. O. Chanute, the past president of the American Society of Civil Engineers; Mr. Chas. Parsons, the inventor of the steam turbine; Mr. Thomas A. Edison, Herr Lilienthal, M. Ader, Mr. Phillips, and a host of others.

From the writing of Langley, Lilienthal, Maxim, Chanute, etc., we obtained the best knowledge we could of the laws of aerodynamics, but as we went on we found that many things which we at first supposed to be true were really untrue; that other things were partly true and partly untrue; and that a few things were really true.

As to the state of experimental knowledge at the time we began our experiments, we reached the conclusion that the problem of constructing wings sufficiently strong to carry the weight of the machine itself, along with that of the motor and of the aviator, and also that of constructing sufficiently light motors were sufficiently worked out to present no serious difficulty; but that the problem of equilibrium had been the real stumbling block in all serious attempts to solve the problem of human flight, and that this problem of equilibrium in reality constituted the problem of flight itself.

We therefore decided to give our special attention to inventing means of retaining equilibrium, and as this was a field where mere speculation was of no value at all, we made a careful study of the state of the experimental knowledge. We found that, prior to Lilienthal, no one had made any serious attempt to leave the ground in a flying machine. All experiments in the air had resulted in such immediate disaster that the first trial was not usually followed up. But Lilienthal constructed several motorless apparatus, and with them began a study of the problem by actual experiments in the air. The studies were continued for several years, but he met with a fatal accident and was killed before having found the solution.

His machine consisted of immovable supporting planes, somewhat similar in shape to the wings of large birds, and having at the rear a tail consisting of a vertical vane and a horizontal vane, mounted on a tail stick. Neither the vertical vane nor the horizontal vane could be operated by the aviator. Balance was to be effected by shifting the body of the operator toward that part of the aeroplane which attempted to rise, in the hope that the increased weight on that part would bring it down again. Such method was, from its nature, quite impracticable for application in practical flying, since in heavy motor-driven machines the weight which it would be practicable to move would be so small,

in proportion to the total weight of the machine, that such movement would be quite inadequate to control equilibrium.

Even in the light glider he frequently found it insufficient, and several times was turned completely over in the air. In one such fall he was killed. His example, in adopting this method of experimentation, was followed by Mr. Chanute and his assistants and by Mr. Pilcher. After the death of Lilienthal, in 1896, Mr. Chanute discontinued his experiments, and, after a time, Mr. Pilcher fell and was killed.

The efforts of Mr. Maxim, Mr. Phillips, and M. Ader (the latter with the financial assistance of the French Government) to construct motor-driven aeroplanes had resulted in the abandonment of the experiments without flight having been attained. So that the period of unexampled activity, which extended from 1889 to 1897, was followed by one of complete collapse and despair, during which the attention of the world was turned entirely to dirigible balloons, at this time brought into prominence by Santos Dumont.

During the "boom" period fully a half-million dollars had been expended under the direction of some of the ablest men in the world and two lives had been lost. When we studied the story of loss of life, financial disaster, and final failure which had accompanied all attempts to solve this problem of human flight, we understood more clearly than before the immensity and the difficulty of the problem which we had taken up. But as we studied the story of their troubles and considered how and why they failed, we could not help thinking that many of their troubles might have been avoided and that others might have been overcome by the adoption of more adequate methods.

We began to study the flight of birds to see whether they really used the methods of maintaining equilibrium which Chanute and Mouillard had represented the birds as using. They had represented that the birds maintained fore and aft balance by moving the wings forward and backward so as to bring the centre of pressure of the wings to the front or to the rear of the centre of gravity, and thus tilt the bird upward in front or upward at the rear, as occasion required.

But in watching the flight of some pigeons one day we noticed one of the birds oscillate rapidly from side to side, that is, it tilted so that one wing was elevated above its normal position and the other depressed below its normal position and then tilted in the opposite direction. These lateral tiltings, first one way and then the other, were repeated four or five times very rapidly; so rapidly, in fact, as to indicate that some other force than gravity was at work. The method of drawing in one wing or the other, as described by Chanute and Mouillard, was, of course, dependent in principle on the action of gravity, but it seemed certain that these alternate tiltings of the pigeon were more rapid than gravity could cause, especially in view of the fact that we could not detect any drawing in first of one wing and then of the other.

In considering possible explanations of the method used by the bird in this instance, the thought came that possibly it had adjusted the tips of its wings about a lateral transverse axis so as to present one tip at a positive angle and the other at a negative angle, thus, for the moment, turning itself into an animated windmill, and that when its body had revolved on a longitudinal axis as far as it wished, it reversed the process and started to turn the other way. Thus the balance was controlled by utilising dynamic reactions of the air instead of shifting weight. So far as fore and aft balance is concerned, this seemed to be accounted for by fore and aft movements of the wings, as claimed by Chanute.

In speculating on possible methods of constructing a flying machine to carry a man, we hit on the idea of providing a structure consisting of superposed surfaces rigidly trussed along their front and rear margins, somewhat after the general style of the Chanute "double-decker," but not trussed from front to rear. The connections of the uprights joining the two surfaces were to be hinged so that the upper surface could be moved forward or backward, with reference to the lower surface. This would have an effect on fore and aft balance similar to that produced by the fore and aft movement of the wings of birds. I refer, of course, to the slight fore and aft movements of the wings of soaring birds, like the buzzards and hawks, made for the purpose of balancing. It is an entirely distinct thing from up and down flapping. It was designed to move either end of the upper surface forward or backward by a separate lever, one controlling one tip and the other the other. If both levers were pressed forward the upper surface would be moved bodily forward and the machine would turn upward, but if one lever were thrown forward and the other backward, one tip of the upper surface would move forward and the other backward. Thus there would be no change in the general position of the upper surface to the front or rear of its normal position, but the entire structure, consisting of both the upper and lower surface, would be given a warp like that shown in our patent. We reasoned that by imparting such warp we could control lateral balance of the machine, either for the purpose of balancing or steering, as we had noticed that when the birds were tilted they circled around the depressed wing.

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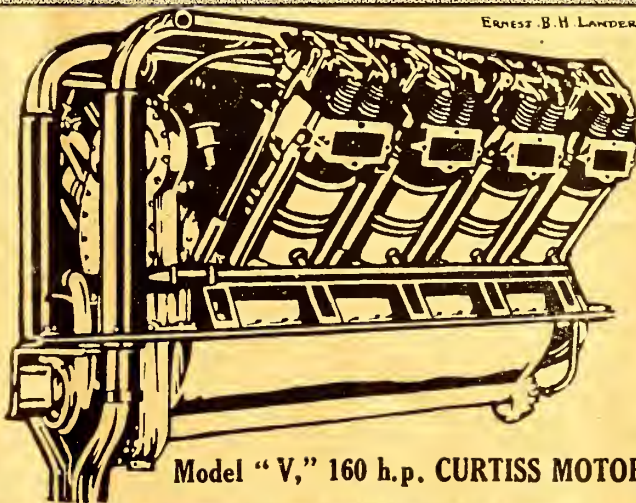
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In this design it was not intended to use either vertical or horizontal vanes or rudders of any kind. We reasoned that all the evolutions of flight could be attained by the various combinations of movements of the two levers controlling the two ends of the upper surface. This speculation was very interesting from a theoretical standpoint, but when we came to consider it from the standpoint of practical invention we were convinced that without any supplementary horizontal surface the machine would be too erratic to be controlled by an aviator, and, besides, that it would call for an exertion of strength much beyond that possessed by a human being, both during flight and in landing.

Before attempting to construct a glider on this general principle we worked out the construction of the supporting planes and the mode of flexing an horizontal rudder. The horizontal rudder was placed at the front. There was no tail of any kind, either vertical or horizontal. With machines of this description we made experiments in the years 1900 and 1901 on the seashore near Kitty Hawk, N.C. It was our idea that the method of experimentation of gliding had been so discredited by the deaths of Lilienthal and Pilcher that we intended to practise with this apparatus by attaching it to a short horizontal rope and letting it float in a strong wind a few feet from the ground, while we practised the manipulation of the horizontal front rudder and the warping of the wings to maintain the apparatus in balance. But we found that a stronger wind than the scientific calculations of other experimenters indicated was necessary in order to sustain this machine.

It was, therefore, necessary to resort to gliding in order to attain a relative wind strong enough to sustain this apparatus. We experimented first with the warping wires fastened tight and used the front rudder only. We feared that if we attempted to control both we would not properly control either, as we were without any training. We therefore glided down a slope, controlling our up and down movements and balance by adjustments of the horizontal front rudder. If the machine attempted to turn over sideways we brought it to the ground. The flights were made at first at a height only of one or two feet.

We found that the flexible front rudder was very efficient in controlling the fore and aft balance. We also found that frequently we could make glides of 15 to 20 seconds without being tilted laterally sufficiently to necessitate landing. If the tilting was bad we immediately brought the machine down.

After we had acquired some skill in handling the horizontal front rudder we loosened the warping wires and attempted to control the lateral balance also, but when we did this we found ourselves completely nonplussed. The apparatus did not act at all as we had expected. At first we were not able to determine exactly what it did do, but it was clear enough that it was not what we wanted in all respects. We repeated the trials for the purpose of determining, if possible, exactly what happened, but found this no easy task.

To the person who had never attempted to control an uncontrollable flying machine in the air this may seem somewhat strange, but the operator on the machine is so busy manipulating

his rudder and looking for a soft place to alight that his ideas of what actually happens are very hazy. It is much nicer to sit before a pleasant fire and speculate than to work out, at the risk of life and limb, the constructions necessary to reduced speculation to practical invention.

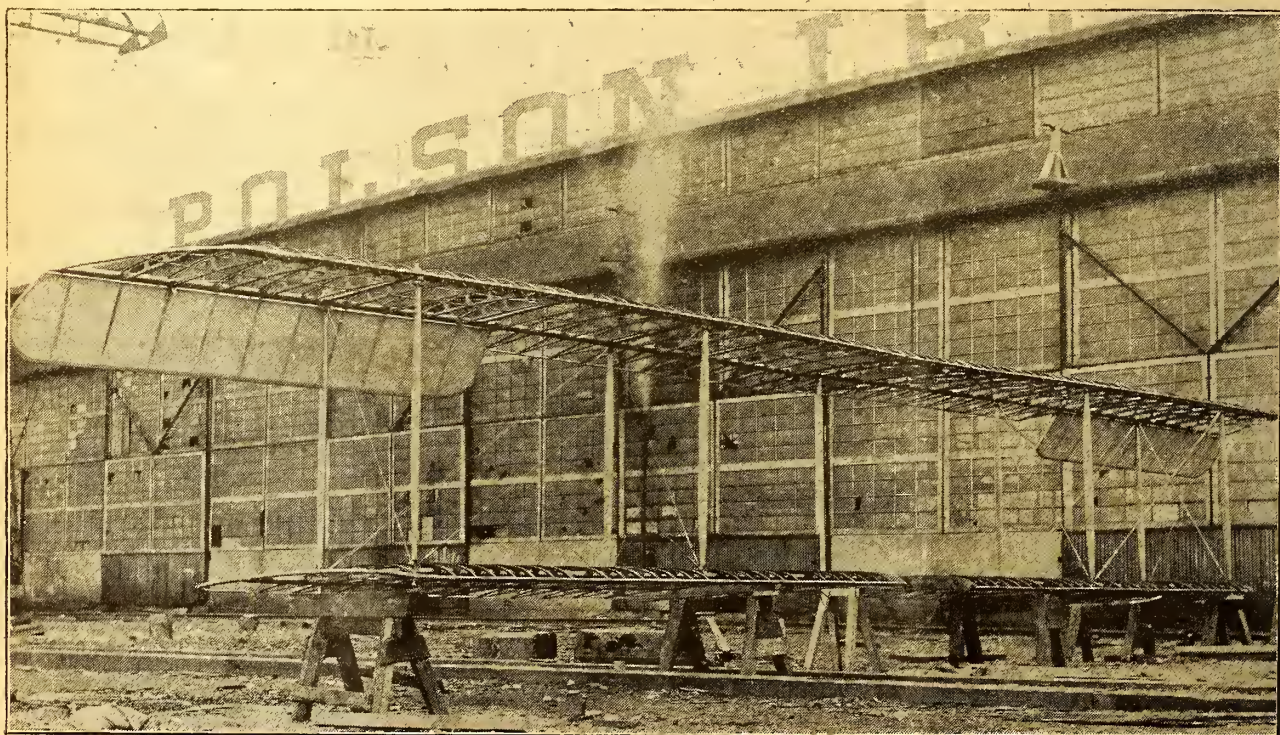
We repeated this experiment time and again, and several times barely escaped disaster. We found that if we jerked the warping cradle back and forth rapidly the machine would make its way down the hill, but if we persisted in the movement long enough to determine its real effect the machine quickly acquired such a peculiar feeling of instability that we were compelled to instantly seek the ground.

After repeated experiments we began to perceive that in landing the machine was skidding somewhat toward the wing having the smaller angle, and was facing somewhat toward the wing having the greater angle, and the wing having the greater angle seemed to touch first. As our season was now at a close, we were compelled to leave the problem in this condition.

These experiments constituted the first instance in the history of the world that wings adjustable to different angles of incidence on the right and left sides had been used in attempting to control the balance of an aeroplane. We had functionally used them both when flying at the end of a rope and also in free flight.

When we left Kitty Hawk at the end of 1901 we doubted that we would ever resume our experiments. Although we had broken the record for distance in gliding, so far as any actual figures had been published, and although Mr. Chanute, who was present part of the time, assured us that our results were better than had ever before been attained, yet when we looked at the time and money which we had expended, and considered the progress made and the distance yet to go, we considered our experiments a failure. At this time I made the prediction that men would some time fly, but that it would not be within our lifetime. In view of our own experience and in view of the experience of men like Langley, Lilienthal, Maxim, Chanute, and Ader, men almost ideally fitted in mental equipment and training for such work, and having at their command hundreds of thousands of dollars, all of whom, like ourselves, had found the results attained too small for the effort and money expended, and who had, one by one, abandoned the task before we had taken it up, we felt that similar conditions would probably prevail for a long time, as the problem of stability, which had caused all these men to drop the problem, was yet seemingly untouched, so far as the practical solution was concerned.

After our return home we could not keep our minds off of the puzzling things we had observed, nor keep from studying possible solutions of our difficulties, and before long we were as deeply interested as before. In studying our troubles relating to lateral balance, we reasoned that possibly the trouble might be due to the fact that the wing to which an increased angle of incidence had been imparted would receive not only an increased lift, but also an increased backward pressure or resistance, and that this might so decrease the speed of that wing, as compared to the opposite



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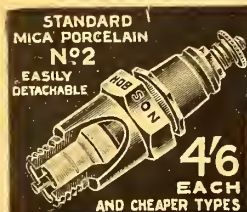
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wing, that its lift would be reduced sufficiently from this cause to wipe out the increase in lift, due to its greater angle of incidence. It is a well-known law of aerodynamics that the lifting pressure varies as the square of the speed at which the aeroplane and wind strike each other, so that if the wing of the greater angle lagged behind while the other wing gradually forged ahead, one wing would be moving at a different speed from the other, and by reason of this speed would have a different lift, the slower wing, of course, having the lesser lift. We reasoned that if the speeds of the right and left wings could be controlled the advantage of the increased angle of incidence of one wing and decreased angle of the other could be utilised as we had originally intended.

Two ways of controlling the relative speeds of the wing tips were open to us; one consisting in providing means for creating variable resistances at the wing tips at the will of the operator, so that the wing which tends to forge ahead could be retarded; the other consisted in providing a surface at the rear with which a torque about a vertical axis could be created, to counterbalance that produced by the difference in resistance of the wing tips.

We decided to use the surface at the rear, on account of its greater dynamic efficiency, since every pound of resistance at the wing tips would cost an extra pound of push in the propeller, while with the surface at the rear, exposed almost edgewise, eight or ten pounds of turning power could be obtained at an expenditure of one pound backward resistance or one pound of propeller thrust. And, for the sake of simplicity, we decided to use a fixed vertical vane, as we reasoned that if the machine attempted to turn on a vertical axis the vane at the rear would be exposed more and more to the wind and would stop further turning of the machine as soon as the vane was exposed enough to receive a turning pressure equal to that produced in the opposite direction by the difference in the resistances of the wing tips when adjusted to different angles of incidence. Thus the vane would be exposed to the wind on the side toward the wing having the smaller angle of incidence.

In the fall of 1902 we returned to Kitty Hawk with an apparatus fitted with a fixed vertical vane at the rear. When we tried the apparatus we found that under favourable conditions the apparatus performed as we had expected, so that we could control lateral balance or steer to the right or left by the manipulation of the wing tips.

This was the first time in the history of the world that lateral balance had been achieved by adjusting wing tips to respectively different angles of incidence on the right and left sides. It was also the first time that a vertical vane had been used in combination with wing tips, adjustable to respectively different angles of incidence, in balancing and steering an aeroplane.

But as we proceeded with our experiments we found that the expected results were not always attained. Sometimes the machine would turn up sidewise and come sliding to the ground in spite of all the warp that could be imparted to the wing tips. This seemed very strange. The apparatus would sometimes perform perfectly, and at other times, without any apparent reason, would not perform at all. Every now and then it would come tumbling to the ground and make such a rough landing that we often considered ourselves lucky to escape unhurt.

By taking the chance over and over we finally began to notice the conditions under which the difficulty was liable to occur. It seemed that when the machine was tilted laterally it began to slide sidewise while advancing, in accordance with the well-known law of gravitation, just as a sledge slides downhill or a ball rolls down an inclined plane, the speed increasing in an accelerated ratio. If the tilt happened to be a little worse than usual, or if the operator was a little slow in getting the balance corrected, the machine slid sidewise so fast that the sidewise movement of the machine caused the vertical vane to strike the wind on the side toward the low wing, instead of on the side toward the high wing, as it should have done.

In this state of affairs the vertical vane, instead of counteracting the turning of the machine about a vertical axis, as the result of the difference of resistance of the warped wings on the right and left sides, on the contrary assisted in its turning movement, and the result was worse than when the vertical vane was absent. We felt that if this was the true explanation it would be necessary to make the vertical vane movable, in order that the pressure on the side toward the low wing might be relieved and the pressure brought to bear on the side toward the high wing. We spent several days in experimenting to make sure that this was the real cause of the difficulty.

Meanwhile my brother, in thinking about the matter, noted that a particular relation existed in the desired pressures on the rudder, no matter whether the troubles were due to differences of resistances of the wing tips or whether they were due to sliding. In either case it was desirable to get rid of the pressure on the side toward the low wing, to which a greater angle of incidence must be imparted, in restoring lateral balance, and brought to bear on the side of the vertical tail which is toward the high wing to which the reduced angle of incidence must be imparted in such case. For the sake of simplicity we therefore decided to attach the wires controlling the vertical tail to the wires warping the wings, so that the operator, instead of having to control three things at once, would have to attend to only the forward horizontal rudder and the wing warping mechanism; and only the latter, alone, would be needed for controlling lateral balance.

We now had the structure in the form pictured and described in the drawings and specification of our patent. With this apparatus, we made nearly 700 glides in the two or three weeks following. We flew it in calms and we flew it in winds as high as 35 miles an hour. We steered it to right or left, and performed all the evolutions necessary for flight.

(To be continued.)

THE Y.M.C.A. AT WORK AND PLAY.

An interesting function took place at the works of the Rotax Motor Accessories Co. at Willesden Junction on Wednesday last. Owing to considerable recent additions to the premises and consequent additional staff, the Rotax Co. have found it desirable to erect a large canteen so that their workpeople and staff can be provided with meals and refreshments at a reasonable cost. The canteen is organised and run by the Y.M.C.A., and meals are supplied at cost price.

The canteen, which cost the firm several hundred pounds to erect, will accommodate about 400 people at a time. The provision of these canteens meets with the hearty approval of the Government officials, and on this occasion the Y.M.C.A. and the Rotax Co. were honoured by the presence of Major-General Sir Francis Lloyd, K.C.B., C.V.O., D.S.O., who made a rousing speech to the workpeople, pointing out the vital importance of their work. Incidentally, Major-General Sir Francis Lloyd congratulated the Rotax Co. on the small percentage of eligible men they employed.

Mr. A. Yapp, National Secretary of the Y.M.C.A., made an interesting speech, and was listened to with deep attention, relating several of his experiences at the front in France which were greatly appreciated. Mr. E. Aron made an admirable chairman, and the harmony of the proceedings were added to by a very capable band. The meeting was held at 6.30 p.m., so as not to interfere with the work, and to give the night shift an opportunity of attending. During the day luncheon was provided free.

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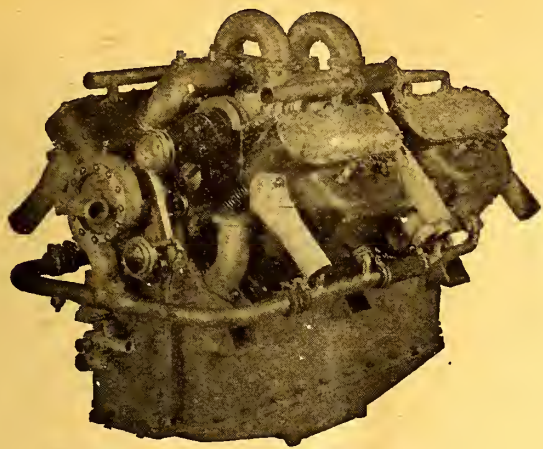
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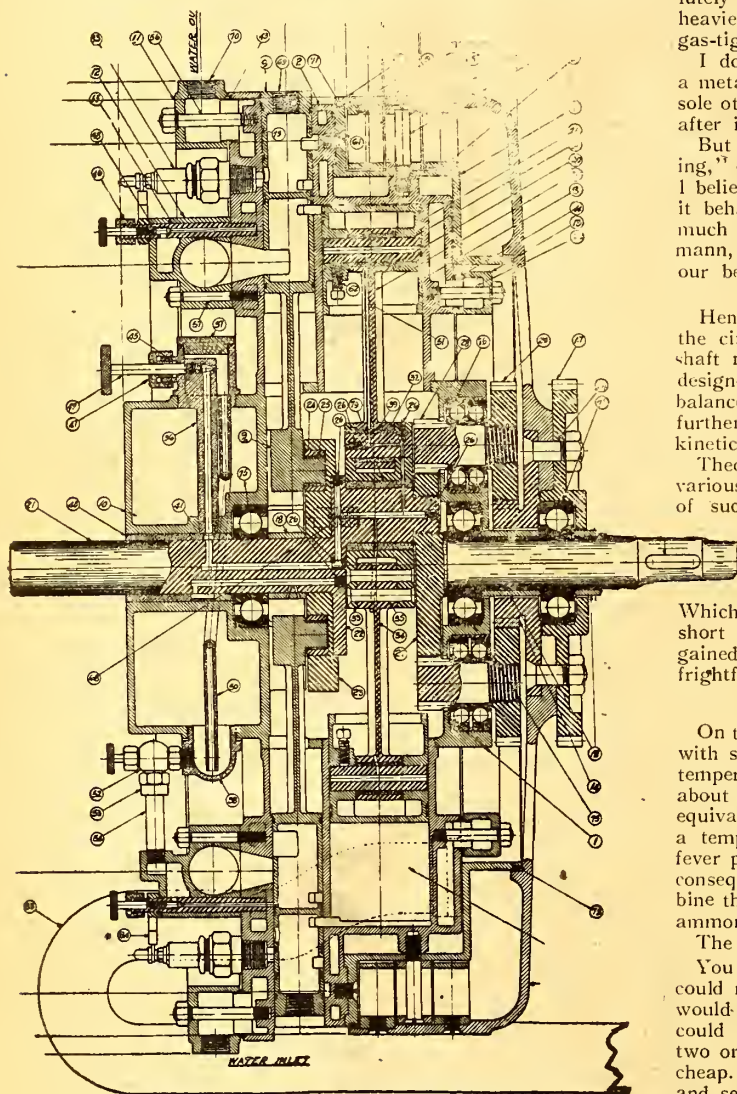
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Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

IN THE MATTER OF PRIME MOVERS

Man never being, but always to be, blest—for which reason he is mostly trebly partipated very much otherwise—he was no sooner given a reciprocating prime mover than he wanted a power wheel. And considering that all reciprocating motion other than the actual power-stroke is, *per se*, lost motion; that you get far more leverage, obviously, upon wheel radii than upon cranks one-fourth the length, or less; and that the crankless shaft represents



The Detroit Gas Turbine in Section.

the ideal of rotary power transmission—100 per cent. efficiency, less bearing friction losses—engineering man was perfectly right . . . in theory.

His subsequent tragedy has always been practice; and the eternal compromise between the desired ideal and the thousand and one vices of the inanimate and the inert.

With a crankless shaft it is possible even to get 99.9 of transmission efficiency, and cut those friction losses by using one absolutely frictionless auto-lubricant bearing-metal, itself many times heavier and denser than the steel of the shaft, and, incidentally, gas-tight, so that the bearing constitutes a perfect gland.

I don't mind telling you, for what it may be worth, that such a metal—the one and only obviously everlasting—is mercury, the sole other earthly use of which is to record the self-evident calamity after it has happened.

But as mercury, thus used, has an inveterate habit of "flowering," or going into tiny globules; and as there are only two men, I believe, in the world who know just what to put into it to make it behave itself, I don't think the information is likely to be of much value. So that we must still depend upon the tales of Hoffmann, and D.W.K., and Skeffo, or the ever-amiable Timken for our bearing efficiencies.

AS TO TURBINES GENERALLY.

Hence all the more reason for a turbine; something in which the circulating and continuous power-effort positively floats the shaft more truly than the most ingeniously devised, accurately-designed radial prime-mover—even one with a mechanically balanced motion in every cylinder—can possibly do. Something, furthermore, in which the very weight of the wheel-rim has its kinetic energy power-value.

Theoretically, all these benefits are promised to the eye, in steam, variously superheated unto seven times. Practically, the difficulty of such superheat, and about twenty other considerations, deny that promise when they do not wholly break it. For one thing, no lubricant is going to stand up to such a heat. So one hears of such clearances between rotor-blades and stator-blades as a full half-inch in one famous turbine.

Which means that it is, and must be, a steam-eater, at anything short of its full rotary speed. And, consequently, that what is gained on the swings of speed is lost on the roundabouts of the frightful minus pressures needed to get that steam through.

AND ONE POWER-MEDIUM PARTICULARLY.

On the other hand, there is—might, or may be, rather—ammonia, with seven times the expansive power of water-vapour per unit of temperature increase. With an initial boiling point somewhere about 40 deg. to 43 deg. F. And, consequently, with a power-equivalent as to the unit of water of about 1,350 to 1. Also with a temperature limit to which you dare heat it, no higher than fever point, and less than half water's initial boiling point. And consequently needing no greater clearances in a conceivable turbine than 1/20 to 1/12 of an inch, maximum. Some power medium, ammonia. If . . .

The "if" in this case being, if you could use it.

You cannot, in any conceivable reciprocating engine, because you could never hold it under pressure of even atmospheric heat. It would not only leak, but pour past any piston or bearing that could move at all. Nor in any turbine that is made of any but two or three metals of special density, none of them particularly cheap. It would simply sweat through. Go to any ice-foundry and see. Nor, for that matter, even in any turbine, unless fitted with that one marvellous Hg. bearing-gland, which, as I said,

Part No.	NAME OF PART.	Part No.	NAME OF PART.	Part No.	NAME OF PART.	Part No.	NAME OF PART.
1	Crank case.	23	Track cam.	46	Packing nut.	68	Track cam lock screw.
2	Gas compressor cylinder.	24	Roller.	47	Packing gland.	69	Follower valve plug.
3	Outer rotor casing.	25	Roller bushing.	48	Oil control needle valve.	70	
4	First row rotor blades.	26	Screw plugs.	49	Oil needle valve.	71	Outer rotor packing.
5	Stationary row deflector blades.	27	Driving shaft gear.	50	Oil tube.	72	Inner rotor packing.
6	Second row rotor blades.	28	Driving pinion.	51	Connecting-rod oiler tube.	73	Follower valve packing ring.
7	Inside rotor casing.	29	Intermediate driving gear.	52	Oil angle valve.	74	Compressor piston packing ring.
8	Gas compressor piston.	30	Connecting-rod.	53	Packing nut.	75	N.D.S.R. ball bearing.
9a & 9	Follower valve & cross-head.	31	Wrist pin.	54	Nipple.	76	N.D. D.R. ball bearing.
10	Oiler.	32	Bushing.	55	Oil tube stud.	77	N.D.S.R. ball bearing.
11	Water manifold.	33	Conn. rod spool.	56	Water manifold stud & nut.	78	Key.
12	Gas intake & oiler manifold.	34	Master rod.	57	Gas intake manifold stud & nut.	80	Nut.
13	Water circulator manifold.	35	Master rod rivet.	58	Moving rotor screw.	81	Lock wire.
14	Pinion & side plate.	36	Oiler feed stem & chamber.	59	Stationary blade screw.	82	N.D.S.R. ball bearing.
15	Frame housing.	37	Oil cover.	60	Moving rotor screw.	83	Spark plug.
16	Bearing plate.	38	Oil well.	61	Inside rotor casing screw.	84	High tension cable.
17	Starter gear.	39	Connecting-rod pin.	62	Wrist pin set-screw.	85	Exhaust pipe.
18	Distance piece.	40	Wrist pin bushing.	63	Water circulator stud & nut.	86	Oiler filler cap.
19	Connecting disc.	41	Bushing.	64	Clamp bolt.	87	Nozzle.
20	Driving shaft.	42	Bushing.	65	Cap screw.	88	Cylinder stud & nut.
21	Crank shaft.	43	Packing cone.	66	Clamp bolt.	89	Frame case stud & nut.
22	Crank-shaft disc.	44	Packing cone.	67	Clamp bolt.	90	Frame clamp bolt & nut.
		45	Packing.				

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is not yet available to the common likes of us. When it is . . . you may forget everything except aerofoil and solenoid-ray efficiencies.

But both the actual steam and the potential ammonia fluid-pressures derive from external combustion in a closed cycle; in the latter case, absolutely sealed of necessity.

THE INTERNAL COMBUSTION TURBINE QUESTION.

When, however, you come to discuss internal combustion, in any cycle, you have the openness of that cycle, anyway, postulated for you. Also the brazen laws of any internal-combustion cycle unalterably demanding induction and compression of the power-medium as an inevitable prelude to the development of its power by combustion, let alone to the efficiency of that power-stroke.

So you see at once the physical as well as mechanical problems ahead—if only from past experience of reciprocating motors—when you propose an internal-combustion turbine.

But, if you rub your nose in your troubles, you will see nothing else, and certainly no way out of them.

THE FUNDAMENTALS OF IT.

Then let us detach, and get right back to the essentials of any internal-combustion proposition. We shall see at once that the operation of all cycles reduces to a mechanical matter of working surfaces.

For induction, some working surface to suck with, and another to draw from, inducing a minus pressure between.

For compression, two precisely similar surfaces, to set up greater pressures between them as they approach.

You will see that it does not matter whether one or both surfaces move, so long as—in the latter case—they move in opposite directions.

For combustion—the power-stroke—precisely the same conditions operate. Only the combustion effort must kick-off from one surface upon the other. Or, if both are mechanically arranged to move and transmit its power—as in the Gobron-Brillié four-stroke and Kelly two-stroke motors—from and upon each surface, mutually co-acting for the purpose.

For the exhaust—well, this is the stage where the cycle opens. One surface, therefore, the sweeper-surface—and not too much of that—and as little of any opposing surface as may be, is the ideal.

I.C.T. POSSIBILITIES AND LIMITATIONS.

Now it is clear that if these four operations are to be carried out in any mechanical manner in any conceivable cycle we cannot get away from reciprocation of moving surfaces, relatively to those which are stationary and of constant area—e.g., the cylinder head—and also to containing surfaces—for instance, cylinder walls—with areas subject to alternate increase and decrease. Otherwise you could never get a charge of mixture into your motor, still less compress and use it in a power-stroke.

So—albeit mere admission would be sufficient for an expansive medium, already at its maximum pressure and power-effort, such as steam—provided you can arrange this essential induction and compression, with delivery to an appropriate set or sets of rotor blades, there should be nothing theoretically to prevent one having an internal-combustion turbine of sorts.

And, so far as the combustion effort was enabled to “kick-off” from the stationary surfaces of an entry port closed behind it, and from a set of stator blades, the machine would be to that extent

a reaction-turbine: otherwise bastardised by the original induction-and-compression reciprocation mechanism.

PROBABILITIES, AND SOME CERTAINTIES.

It might be extremely, even extraordinarily efficient at high speeds. There is positively no evidence to the contrary, because so far there have been no successful internal-combustion turbines—even experimentally successful or promising—to afford any experience upon which sound evidence could be founded.

The question could, and can, only be settled by actual trial with a dynamo and a bank of lights, or, better still, in an aeroplane, irrespective of claims. And it would be decided mainly by the further question as to how far the absolutely essential gear reduction to the final shaft-drive would lessen the original mechanical efficiency of the rotor, to the final power output on the shaft.

Quite possibly the decrease would be slight. Up-to-date material and gear design certainly permit that result. But nothing short of trial—the most official kind, eagerly besought, one would say—could settle the point. Short of that, claims are worthless.

But it is quite certain that no such turbine could possibly be efficient at low or even medium speeds. Chiefly because it was an internal-combustion turbine, and of the reaction type at that. And likely as not, it would be as inflexible as any rotary, owing to its “flywheel” genus, and the consequent kinetic energy developed on the rotor at turbine speeds. Which—since the longest possible range of speeds is the most desirable, as it is the most neglected, feature in aeroplane development—is obviously *vieux jeu* in aero-motor design.

ANOTHER WAY, AND ITS RESULTS.

On the other hand—reverting to that original matter of engaged surfaces—it is far less obvious, but no less true, that it would be the greatest advantage—if not, indeed, an ideal condition—if we could arrange matters mechanically so that, instead of two surfaces out of four remaining at constant area, the one working surface increased while the areas of all the others, including the containing surfaces, were correspondingly lessened, during certain phases of the cycle.

For the obvious consequences would be:—

During the induction, so long as the port remained open—a valve would probably fail mechanically—that the suction area of the active moving surface increased very much faster than the increase of containing-surface areas, while the stationary surface, corresponding to the cylinder head, was just as rapidly reduced.

Automatically, therefore, the induction effort would progressively increase towards the end, instead of lessening—as in ordinary motors—and a fuller charge would be inspired.

During compression—since there can be no indefinite increase of the area of any working surface without a corresponding decrease, after a certain point is passed—we should find the areas of all surfaces, both moving and containing, rapidly and progressively decreased, except the fixed-point surface at the end of the phase-movement; which would be the position of the delivery port into some intermediate transfer or pressure storage chamber.

Automatically, therefore, the compression effort would be more rapidly increased.

During the combustion, firing-stroke, or *detente*, exactly the same results would occur, *automatically*, as during the induction phase. That is, the effective working surface of the moving part—upon which the combustion effort reacted—would increase faster

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than the areas of the containing surfaces; while the fixed point—a closed port area—would not increase at all. And this effort might well last—does so in two examples I have in mind, *actually* over 115 deg. instead of the possible 90 deg. of an ordinary motor.

And during the consequent exhaust, while the working area of the moving surface progressively increased and decreased, the containing surface areas would decrease rapidly towards the fixed point of the open exhaust. So that the pressure automatically subsides to atmosphere before it reaches the port, and is swept out clean.

AND THE MECHANICAL REASONS THEREOF.

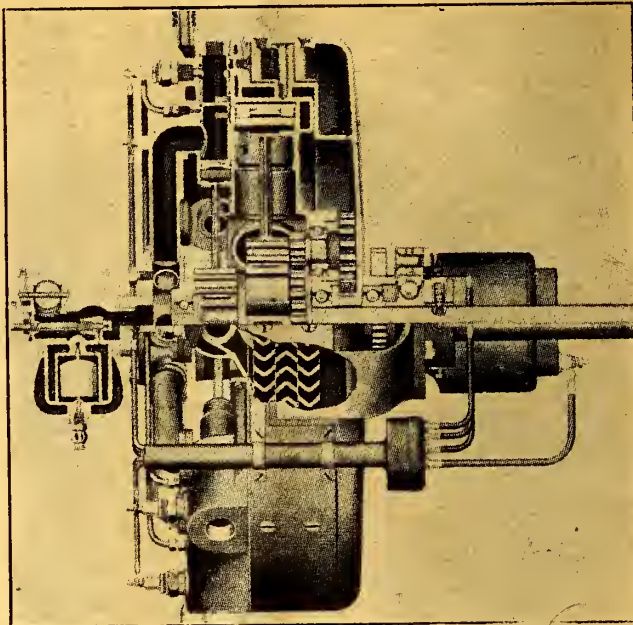
All of which advantageous and efficient happenings would, indeed do, occur in an internal-combustion turbine of the type in which the shell or stator is eccentric to the shaft and rotor-mass; out of which, for active moving surfaces, project four vanes, gas-tight shod at their edges, two working vanes, and two followers, in alternate function—as such; each in either case having a positive and a negative-action surface; their motion in and out of the rotor-body being the only reciprocation, and, furthermore, *automatic*, as part of the rotor-motion.

Such a turbine would consequently be a true turbine, not a compromise-combination. It would *not* depend on its rotary speed for its efficiency, since all its phase reactions would occur upon *radial*, not peripheral surfaces. Consequently it would be as flexible as any reciprocating motor, while subject to much the same speed-and-power output ratios. But since it so happens that there would be *two working-strokes per unit*—each of 115 deg.—per shaft-revolution, that power-output should be tolerably efficient; especially with four such units, alternately opposed, on a single four-foot shaft!

THE IDEA AND THE FACT.

That, however, is merely the British idea in two places; incidentally reducible to *twelve* parts per unit, two or three spur-gears for the lot, and the usual inevitable accessories for carburation, lubrication, and ignition. And claiming nothing that is not prospectively apparent or obvious.

The American actuality, on the other hand, for which everything is claimed within the ring-fence of physical or mechanical possibility, with a considerable hurry-call to back its claims, is the Detroit Gas Turbine; the last of many arduous experiments. As duly illustrated in sectional elevation. And, when analysed, extremely simple, cleverly designed mechanically, and redundant in no detail, within its possibilities of at least six times the number of parts per unit, and, therefore, in a mechanical sense, likely enough to make good its claims.



Part Section View of the Detroit Gas Turbine.

For imagine eight radial induction and compression cylinders on one crank, supplemented by as many admission-and-delivery-piston valves, radially connected to and stepped in a circular slot cut eccentrically in one web of that crank, so that each moves in the opposite direction to its fellow compression-piston, and delivering compressed charges to two rotors and one stator mounted round the compression cylinders, and the said rotors fitted with appropriate reduction back-gearing to the driving shaft—so that a stated 6,000 to 9,000 r.p.m. on the one is brought down to anything between 2,000 and 3,000 r.p.m. on the other—and you have all the essentials of its working design, as a composite-type reaction turbine. The details, and consequent claims, if as elastic as at least one historical production of Detroit, are no less interesting.

(To be Continued.)

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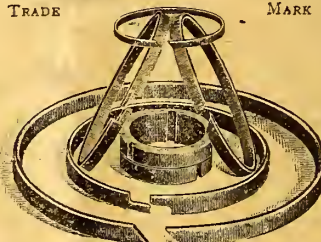
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THE WEEK-END AT HENDON.

A welcome improvement in the weather made the aerodrome a more pleasant resort on Saturday, and there was a good deal of flying. Two of the Grahame-White machines were out, and many passengers were carried.

The most interesting event of the afternoon was the arrival of a new Sopwith from Brooklands, piloted by Mr. Hawker. The astonishing manner in which it climbed on its departure was the topic of the day, and on Sunday, when there were many visitors, one frequently heard the query: "Did you see the Sopwith yesterday?"

On Sunday the Grahame-White School was represented by Messrs. Manton, Russell, Winter, Hale, Pashley, and Biard. There were, however, only two machines available for them—the three-seater, which met with sundry misadventures, and a 60 h.p. box-kite, and had it not been for the entertainment afforded by other machines the flying would not have been particularly interesting.

Mr. Manton gave a good display of banking on the former early in the afternoon, and later on Mr. Russell frolicked about on the box-kite in picturesque style.

Mr. Birchenough was out on a de Havilland, and two Curtiss biplanes made high flights which were much appreciated by the crowd. A shorthorn Maurice Farman also paid a visit from another aerodrome.

Towards six o'clock Mr. Beatty went up on a Beatty Caudron, the L. & P. School "got busy," and the Hall pupils were very active.

Next Saturday the aircraft workers of Hendon and district are holding a sports meeting at the aerodrome under the auspices of the Y.M.C.A. An interesting programme of events has been

arranged, and the prizes will be distributed by Mrs. Winston Churchill.

MILESTONES—XXXIV.

In 1912 came the first really successful Handley Page monoplane, with 50 h.p. Gnome engine. It was exceedingly stable, and antedated the claims of the Royal Aircraft Factory of having discovered the way to produce a stable aeroplane.

The Short monoplane, with 50 h.p. Gnome, was built generally on Bleriot lines. Its chassis was an original feature. The type was not perpetuated.

The Coventry Ordnance biplane was a two-seater tractor built for the British Military Trials. It had a 100 h.p. 14-cylinder Gnome engine, with a propeller geared down through a chain drive. The machine was an interesting experiment, but was not an unqualified success as a flying machine.

The Moreau "Aerostable" was a French attempt at obtaining automatic stability, but it only operated longitudinally. The pilot's nacelle was pivoted under the main planes, and wires were attached to the control members so that the movements of the nacelle in its efforts to keep on a level keel brought them into operation. The machine was fitted with a 50 hp. Gnome.

The Mersey monoplane was, like the Coventry machine, an entrant for the British Military Trials. It was designed to present a clear field of view and fire. The 45 h.p. Isaacson engine was connected by a shaft to a propeller mounted behind the nacelle on the top tail boom. It was a promising experiment, but came to grief, and was not perpetuated.

The Radley-Moorhouse monoplane was a sporting type machine on Bleriot lines, with 50 h.p. Gnome engine. It was notable for its streamline body and disc wheels.—W. L. W.

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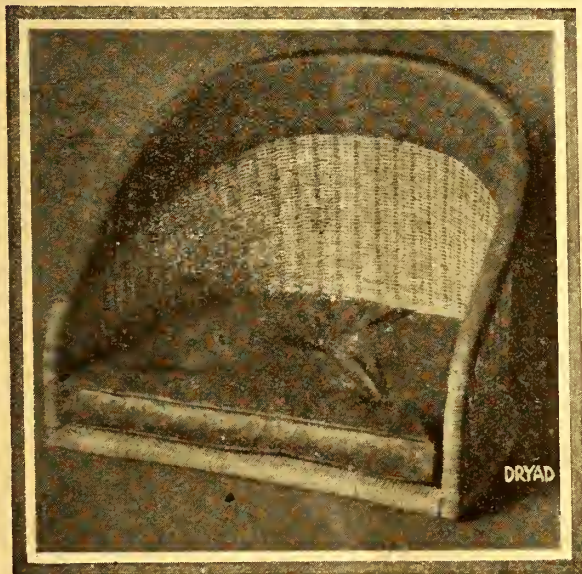
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SCHOOL REPORTS.

HENDON.

AT THE GRAHAME-WHITE SCHOOL.

Instructors: Messrs. Biard, Manton, Pashley, Hale, Russell, and Winter.

Pupils with Instructor: Messrs. Dannel, Jamie, Fisher, Rey, Keymer, Forster, Mills, Mulville, Rodochanochi, Rabourdine, and Welinkar.

Certificate taken by Mr. De Beer.

Machines in use: Grahame-White biplanes.

AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors: Messrs. W. T. Warren, M. G. Smiles, L. H. Brake, and W. T. Warren, jun.

Messrs. Mander, Egerton, Daly, and Sivewright, rolling; Messrs. Evernden and Jones, straights.

Figures of eight or circuits alone: Messrs. Dawson, Whittingham, Birkbeck, and Lieutenant Deacon.

Machines: Three tractor biplanes.

AT THE RUFFY-BAUMANN SCHOOL OF FLYING.

Instructors: Messrs. Ed. Baumann, Felix Ruffy, André Thomsen, Ami Baumann, and Clarence Winchester.

Pupils with Instructor: Messrs. Trubridge, Di Balni, Williams, Babington Smith, Beebee, Fanshawe, Wilson, Carr, Fraser.

Straights or rolling alone: Messrs. Fanshawe, Westlake, Di Balni, Fraser, Williams.

Eights or circuits alone: Messrs. Westlake, Fraser, Winter.

Machines in use: 50 and 60 h.p. Ruffy-Baumann tractors.

By an oversight it was mentioned last week that Mr. H. E. Winter secured his certificate. He actually did half his tests.

AT THE BEATTY SCHOOL

Instructors: Messrs. G. W. Beatty, G. Virgilio, A. E. Mitchell, and H. Fawcett.

Pupils out during the week: Messrs. Roberts, Knox, Phillips, Murdoch, Garlick, Edwards, McPherson, Whitmore, Mitchell, Towson, Elliott, Austen.

Certificates were taken by Messrs. A. B. Drewery, A. E. Mitchell, and R. W. Stanley.

Machines in use: Beatty-Wright dual-control and single-seater propeller biplanes, Caudron dual-control and single-seaters.

BOURNEMOUTH.

AT THE BOURNEMOUTH FLYING SCHOOL.

Instructors: Messrs. S. Summerfield and Brynildsen.

Pupils rolling alone: Messrs. Pritt, Scaramanga, Daniel, Green, Brandon, Turner, Hammersley, Little, Hinchliff, Wingfield, J. B. Smith, Ross, Montgomery.

Straights alone: Messrs. B. Wilson, H. Smith, Barlow, Daniel, Scaramanga.

Half-circuits alone: Mr. J. Wilson.

Figures of eight alone: Mr. Morris.

Certificate was taken by Mr. Morris, who took a very good ticket.

Mr. Frank Simpson was out on the 45 h.p. Caudron, having extra practice.

Machines in use: 35, 45, 60 h.p. Caudron tractor biplanes.

Quite a lot of people visited the Aerodrome on Whit-Monday and witnessed several ascents by Mr. S. Summerfield on a 60 h.p. Caudron in a very boisterous wind. The usual exhibitions were again carried out on Wednesday and Saturday afternoons before fair-sized crowds, and quite a busy time was experienced with passenger flights. Mr. Etches, the general manager, had a thrilling flight with Mr. Summerfield at over 4,000 ft., landing *en vol plané*. Several Service machines again visited the Aerodrome.

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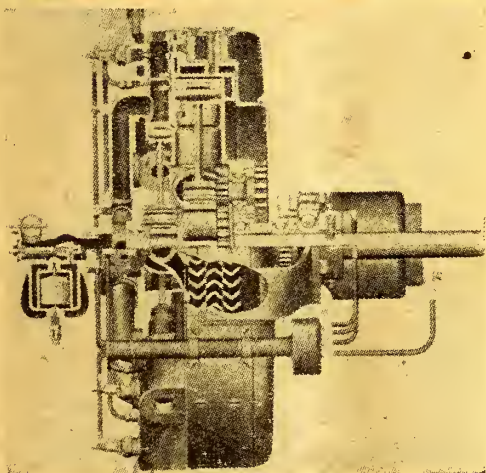
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LITTLE PILOT WILLIE.

(The following imitation of "Little Orphant Annie," by James Whitcomb Riley, has found its way into the Editorial sanctum. Some neutral juvenile has evidently been studying aerial affairs).

Little Pilot Willie's come to our town to stay,
To teedle up and down the coast an' chase the Huns away,
To take his lady frien's about an' drive a lovely car,
An' wear a purty uniform an' earn his second star.
An' all us other fellers, when the supper things is done,
We set aroun' the mess-room fire an' has the mostest fun
A-listenin' to the flyin' tales 'at Willie tells about—
An' the Zeppelins 'll git you

Ef you

Don't

Watch

Out!

Once there wuz a flight-sub-loot 'at wouldn't bank his turns,
An' went up on a mid-night raid, fergettin' what he learns,
His teacher saw him side-slip—the mechanics saw him stall,
An' when they went to pick him up—he wasn't there at all!
They seeked him in the aerodrome, they seeked him in the mess,
An' someone sent his photograph to all the ha'penny Press,
But all they ever found wuz one big toe, with signs of gout—
An' the Zeppelins 'll git you

Ef you

Don't

Watch

Out!

An' little pilot Willie says, when the night is dark,
An' great big bombs is droppin' down purty near the mark,
An' you see the searchlights playin', an' they fetch you outer bed
An' tell you to go up an' chase Somepin' overhead,
You'd better mind your motor, an' see your tanks is filled,
An' not go frowin' matches down where gasoline is spilled,
An' keep your eyes wide open as you're flyin' round about—
Er the Zeppelins 'll git YOU

Ef you

Don't

Watch

Out!

D. W. T.

DOPE POISONING.

At Southampton on May 17th an inquest was held relative to the death of Annie Metcalf (58), a widow, who had been employed at the works of Summers and Payne, Millstone Point. The firm's foreman painter, Walter Fraser, stated that deceased came to the works on March 1st, after being engaged at the Belvidere Works. She put in 9½ hours per day, and had been able to go out whenever she wanted to. On April 20th, when the works were closed down for the Easter holidays, deceased made no complaint of feeling unwell, but she failed to return when work was resumed on April 25th, and on making inquiries witness found that she was ill, and quite unable to follow her employment.

Questioned by the firm's solicitor, witness said that there was a cottage provided for employees for meals and washing; employees could go out at any time they wished; any report of illness was seen to at once; and no employees had ever complained of the fumes from the material used in their work.

Dr. Keppel Compton stated that he was called to see deceased on April 25th, and she complained of pains and vomiting. She continued much in the same condition for a week or ten days, and on May 7th she had symptoms of internal trouble, and he advised her to get a hospital letter in case any operation might be necessary. Two days later the symptoms disappeared. Deceased complained at this time of tasting the varnish used at her work, and thought that it had something to do with her illness. On May 13th Dr. Purvis, acting for the insurance company, arranged to see deceased with witness; but he saw her alone on May 14th, on which day death took place. Witness made a post-mortem examination, and found the liver much smaller than usual. There was no growth whatever, but the blood vessels were stained a deep yellow colour. The kidneys showed degenerative change, as did also the heart muscle. He thought that the continued breathing fumes of the varnish, which deceased used at her work, had circulated into the system, and set up jaundice, which was the cause of death. The Coroner said that varnish or dope which deceased used in her employment had only recently been used in factories, and persons using it knew little or nothing about it. The jury returned a verdict of death from jaundice, caused by the use of varnish.

The Coroner's remarks clearly indicate the normal condition of the official mind in taking years to discover the existence of dangers to human life. For the last eighteen months almost weekly cases of dope-poisoning with fatal results have occurred. Nevertheless, large quantities of aeroplane dope containing the poisonous chemical tetrachlorethane have to be ordered, despite the existence of dopes with perfectly harmless ingredients.

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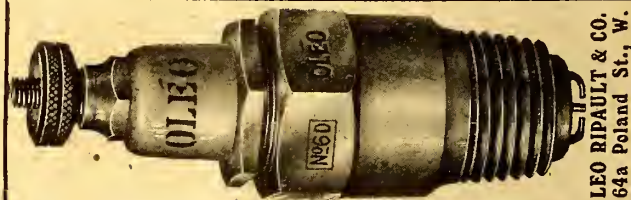
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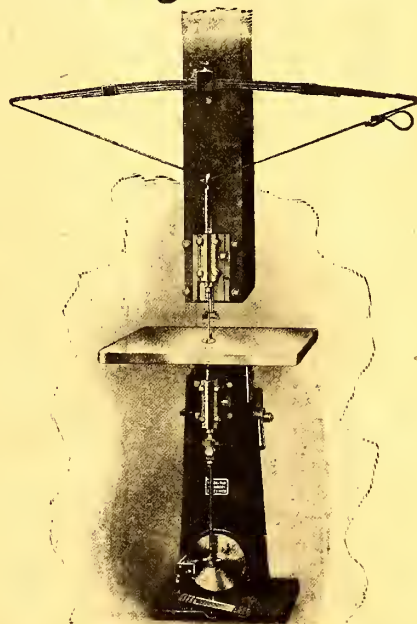
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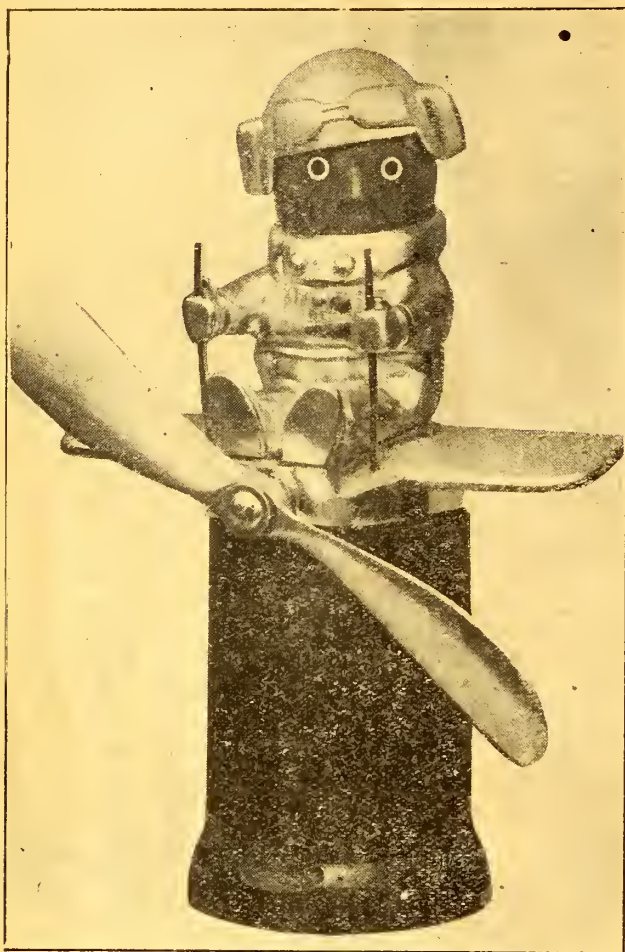


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ON MASCOTS.

If the worship of graven images is not exactly fashionable in this country there still linger traces of heathenism here and there. It is quite possible that this is the real origin of the custom of ornamenting the front of a motor-car with a small mascot. Any-

how, there are few cars, from the elegant Rolls-Royce to the Ford-like Ford, which do not display some token of the owner's taste in idols.

To realise the enormous variety and the artistic possibilities of mascots one must see the large assortment exhibited at the show-rooms of Messrs. S. Smith and Sons (Motor Accessories), Ltd., in Great Portland Street, W. Mr. Harvey, who is in charge of this department, has made a special study of the subject, and has personally designed a great many popular models.

They are beautifully made in brass, and hand-finished. Regimental mascots, such as dogs, goats; and other animals, are naturally very popular in these days, and so good is the workmanship that many duplicates are bought for use as desk ornaments and paper-weights.

The illustration on this page depicts a humorous effort in this direction by John Hassall. It is a kind of sequel to the Policeman Mascot by the same artist, which has already enjoyed considerable success. The Airman Mascot has at least one feature of his own which, it is to be hoped, is not intended to be symbolical—his head is easily turned. His hat is also movable, and various quaint expressions can be obtained by a little manipulation. There should be a good demand for a novelty of this kind.—D. W. T.

A GOOD OPPORTUNITY.

Robinson and Cleaver, Ltd., the well-known naval and military outfitters, of Regent Street, are holding a sale of surplus stock commencing Monday, June 26th, and there are many articles of clothing and other useful and ornamental objects which may commend themselves to aviators.

There will be a special section of officers' equipment of all kinds, including flying coats, British warmers, mackintoshes, oilskins, head-gear and goggles, and, in addition, camp equipment of all kinds.

A visit to Robinson and Cleaver, Ltd., at 156/170, Regent Street, on June 26th, or during the following month, may result in a considerable saving on the inevitable outlay for Service equipment.—W. L. W.



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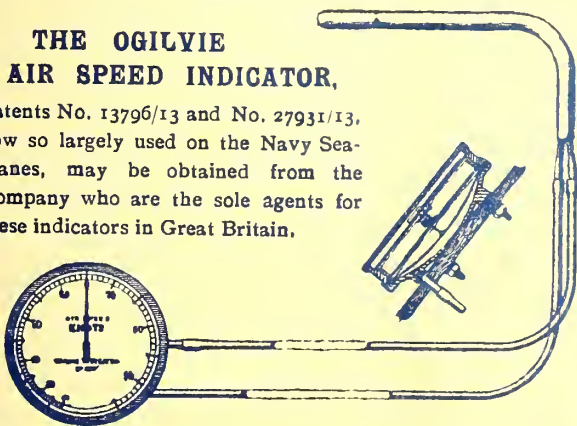
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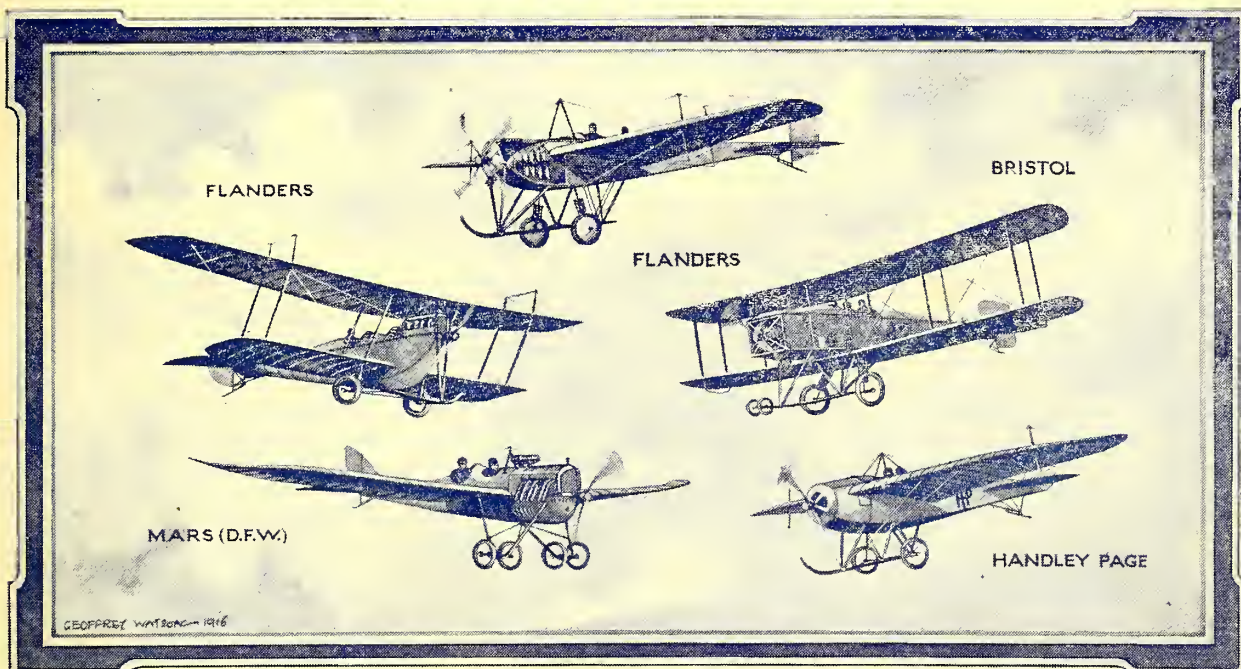
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ON FLYING SERVICE GOSSIP.

When one begins listening to gossip in the Flying Services one needs some little experience of human nature before one arrives at the truth. The flying temperament is occasionally given to flights of fancy as well as flights of body, and though levitation of the individual is as yet impossible, yet levity of mind is by no means uncommon among aviators, even on the most serious subjects—as when someone sympathised with an officer on an unfortunate fatal accident at an aerodrome to which he was attached, only to receive the astonishing reply that the sympathy was misplaced because the victim belonged to another station, and he added "apparently —" (naming the C.O. at that station) "sends his people over to die in our aerodrome." It sounds a trifle gruesome, but I am not sure that it is not rather a sound philosophy of life, especially as the perpetrator of the verbal outrage happens to be the kind of man who would risk wrecking his own car rather than run over a dog in the road.

Both Services share equally the fatalistic temperament, and regard tragedy and humour as very closely allied—as in fact they are—and the sense of humour is, of course, likely to produce, for the sake of effect, a deliberate overstatement of fact in order to produce the most effective contrast. So that in arriving at the truth one has to deduct a discount from the original statement according to one's knowledge of the case, or, if one hears the story for the first time, according to one's knowledge of the teller or of his previous career.

If, for example, the yarn-spinner were the unadulterated product of Osborne, or Woolwich, one would feel inclined to believe his plain statement. If he has happened to have sailed the Seven Seas for some years, or to have served in the luxuriant tropics, one might deduct something for the halo of romance one would expect to surround a traveller's tale. If he has had the misfortune to have been a motor-trade "expert," or a "compleat angler," or to have belonged to other of those fraternities whose members are commonly supposed to carry on the direct succession of Ananias via Baron Munchausen, one works it the other way and extricates the truth from the mass of imagination in which it is wrapped.

NON-DICTIONARY DESCRIPTION.

For example, if a solitary pilot tells one that his engine or machine is a crimson mother of dogs, one puts it down to his having had bad luck with it. But if a dozen say it is—in their own expressive language—a "dud," and no one says anything in its favour, one begins to have doubts about it. On the other hand, if one pilot, of known experience, says that his engine or his machine could be trusted to take him and his best beloved over the mouth of Sheol when the lid is off—as I have heard an enthusiast put it—one starts with a feeling in its favour, which is confirmed if other assorted pilots describe it in terms of praise varying from "a zoggy little 'bus"—the tone rather than the dictionary supplies the speaker's meaning in such a case—to a "darned good machine."

Naturally, one eliminates from one's estimate the

opinions of chronic grumblers, or of men who have fallen foul of senior officers, or, in the case of civilian aviators, of their employers, except when they mention specific points of weakness which can be confirmed or denied by others. Also, one discounts the opinions of men who have had little or no experience of other machines or engines than the one about which they are talking.

Similarly if one hears from several different directions that "So-and-so is a topper," and that the people under him are happy, and if one notices that his subordinates acquire merit in the way of decorations and mentions in dispatches for specified deeds of gallantry, one registers him mentally as a good commanding officer. But if, on the other hand, one learns that the officers under a certain C.O. are constantly trying to get themselves transferred to another command, or are constantly having accidents which seem unnecessary, one begins to wonder whether he deserved his promotion in the first place.

Of course, it is all hearsay and gossip, and none of it would be accepted as evidence in a court of law, outside a comic opera, but it is surprising how accurately it works out in the long run, and how the right men and the right machines and the right principles rise to the top at the finish, even if some good men are "onted" in the process.

A TALE OF REPARTÉE.

All of which has direct connection with what I set out to do, which was merely to retail some Flying Service gossip which appears amusing without being either constructive or instructive.

One little story indicates rather a pretty gift for repartee on the part of a very young officer who is but lately come to the R.F.C. I have already told it elsewhere, but it will be new to many readers of THE AEROPLANE.

This youngster, prior to going to France, was flying across country somewhere in the Eastern Counties in the course of his training, when he was brought down by engine failure. The country was flat and the fields were large—in fact, so easy was the landing that he suffered from an *embarras de richesse*, and in making up his mind which of two perfect fields he would land in he failed to land in either, but, splitting the difference, so to speak, alighted gently in the middle of a soft, bushy hedge between the two, apparently without damaging the machine in any way worth mentioning.

The usual mushroom crowd arrived in a few seconds from what had previously appeared to be miles of agricultural emptiness, among them a very irate being—the owner of the sat-upon hedge—who asked hotly, "Couldn't you see them two great fields and land in 'em, without coming and smashing up my hedge?"

"Certainly I saw your old fields," replied the youth, with his most ingratiating smile, "but, you see, my commanding officer has always impressed it on me that I should land as softly as possible, and your hedge was the softest thing I could see in the district. You weren't anywhere around at the time yourself, were you?"

I have no evidence whatever of the truth or otherwise

of this story, but if the young officer happens to recognise himself he must put the blame for its appearing in print onto a relative of his, who disobeyed the official injunction now pasted up all over the country telling people to be on their guard and not to talk in railway carriages—which injunction, by the way, is another humorous example of Governmental methods of helping the country out during the paper famine.

AERODROME CLEARING.

Another landing story seems to contain the germs of a practical idea. In this case a Service pilot was testing a new and huge land machine, a tractor, with a very small field as an aerodrome. He got out of it all right, but getting back again was quite another matter, for he was quite a stranger to the machine and the ground, and had no idea how fast she should be landed nor how far she would run after landing. However, men were stationed along the windward side of the field to catch her and hold her from crashing into the hedge if she looked like running too far.

The pilot came in gaily, but took the ground too far out in the field—that is to say, too far from the lee side hedge—so that unless the landing crew grabbed her the machine must inevitably hit the hedge fairly hard. At the last moment the pilot changed his mind and decided to get out of the field and make another landing, so he opened the engine out full bore and speeded up.

The landing crew, seeing the vast machine sweeping towards them like an exaggerated Boadicea's chariot, fell on their faces as if shot, except those who had time to run outwards and clear the wing-tips—and the on-lookers were divided in emotion between joy at the comic manoeuvres of the men and anxiety as to what the machine would do. Unfortunately, the engine got going a shade too late, and, instead of lifting, the machine took the hedge, full split, at about 60 miles an hour, while still on the ground.

There was a sound of rending timber, as of Samson bringing down the temple of the Philistines, and to everyone's surprise the machine came to rest a hundred yards or so into the next field, leaving a neatly laid-out section of hedge on the ground behind her. Not a thing had stirred in the machine. Even the propeller—or, rather, the tractor-screw—was undamaged. There were merely a few scratches on the paint. Which was rather remarkable, considering that the hedge was five or six feet high, and old, with good stout butts at that.

So far the evidence in my possession, verbal from a trustworthy eyewitness, points to the occurrence of the incident as related, but I cannot vouch for the truth of the statement that another onlooker strolled up and remarked, "That's rather a neat way of clearing hedges off new aerodromes. But why use a new machine for the job? The Government must have a lot of old ones they could spare, which don't even fly decently."

A WINGLESS LANDING.

Yet another story of a landing which might have been a tragedy and wasn't, comes from a far, far country where there are quantities of sand sufficient to make innumerable Walruses and Carpenters weep. Certain aeroplanes were flying from the base to Headquarters along an unmistakable line of country, and had to land for what the French call *ravittaillement* somewhere about half way.

The half-way aerodrome is alleged to be of nice hard sand, about two miles by four in dimensions—which figures, not being a mathematician, I will not guarantee—and alongside it runs a telegraph line, which, being the direct communication with the base, is solidly installed on good stout posts. The first machine to arrive apparently made quite a respectable landing, but the second pilot—on a big seaplane fitted with a shoregoing under-carriage which a Hun might describe as "colossal"—

seemed to ache for human sympathy, so instead of coming down in the middle of the vast, desert-like aerodrome, he hugged the telegraph line.

Unfortunately, he hugged it too closely, with the result that one wing fondly embraced the top of a telegraph post, which removed the wing quite effectively. The machine swung round, continued its course on its own momentum with a sort of crabwise movement, and the other wing hit the next post. Wing, post, and wires all seemed to break at the same moment, and for one of those interminable fractions of a second which happen to one now and then the wingless machine poised apparently motionless in the air ten or twelve feet from the ground.

Then it sat down solemnly with a thud on the sand, wheels and tail skid hitting at the same moment, coming down on all four, as it were. The bystanders ran over to pick up the pieces, and found the pilot somewhat surprised but quite unhurt, except that his dignity had received rather a nasty bump.

Perhaps the eyewitness of the performance who told me about it may not know very much about flying, but he is a fairly brainy chap and a keen observer, so the story is worth recording as an instance of what can happen without fatal results and of what a well-built machine will stand, for he tells me that nothing in the fuselage or undercarriage was broken, but that the big, stout wheels were flattened up to their hubs—on which the machine was actually resting.

He says that after this affair quite a comic incident happened. A long-expected third machine was heard approaching. Presently it was picked up by someone with keen eyes and pointed out to the others. Everyone said "Here he comes," in a sort of sing-song chorus. Then, as the machine arrived overhead, where it would begin to spiral down, they began to chant "Here he is! Here he is!" But apparently the young gentleman in charge missed the oasis of palms which indicated the half-way halt, having perhaps travelled quicker than he expected, and he continued calmly on his way, and the song changed to "There he goes! There he goes!" as the machine vanished over the desert.

Happily someone had filled his tanks to their utmost, for he eventually landed quite safely some sixty or eighty miles farther on, at another oasis, which was luckily occupied by British troops and not by the enemy.

UNREWARDABLE GALLANTRY.

By way of a change, one may perhaps tell a yarn of a machine which refused to land. There is an old story of a good lady who many years ago asked a frivolous aviator whether it was not very difficult to get down if one's engine stopped in the air. The aviator's reply was: "Yes, indeed, madam! In fact, there are three known cases in France of engines having stopped in the air, and the aviators having been unable to get down, so some humane person had to go up and shoot them to prevent them from dying of hunger."

This is not quite a similar case, and it is worth telling because it is a lesson in pluck and resourcefulness, and evidence can be produced in any court of law to prove its authenticity. In fact, it ought not to come under the heading of Flying Service Gossip, except that the story was told me by an officer of one of the Flying Services.

The machine in question was a twin-propeller biplane, built by a well-known firm, and was purely an experiment. The pilot is the most modest of men, and probably would not like his name mentioned, the passenger was a mechanic named Dodson—equally modest and retiring—but as there is no Victoria Cross to be awarded to civilians he must put up with seeing his name in print for once.

The machine started out on test, with Dodson in the back seat and the pilot in front, but apparently someone had forgotten to put ballast in front, or else had adjusted the machine wrong. Anyhow, she got off the ground all

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right, and had plenty of climb, but when the pilot tried to put her tail up and fly level she insisted on going on climbing.

The situation was exceedingly awkward. Unless the tail could be got up and the nose down there was no possibility of returning to earth, except in a sticky heap tail first. And there did not appear to the pilot to be either enough fuel or power on board to permit of the pair on board following in the trail of Elijah. So something had to be done.

The higher the machine went the worse the situation would become, obviously, so the pilot, who is one of the cleverest and most resourceful in this country, threw the machine over on one side and began flying round in circles, making the machine side-slip to avoid gaining height, and holding her tail up with the rudder. This was all very well in its way, but it was impossible to land so, and the best the pilot could hope for was a side-slip onto a wing-tip and to trust to luck that the smash would not be too bad.

But the crew were not defeated. The pilot spoke to the passenger through the speaking tube, and asked him whether he could climb forward into the cockpit in front of the pilot. Without hesitation the brave Dodson hoisted himself out of his own cock-pit and crawled along the turtle-back deck between himself and the pilot's seat. He had several feet to go after he left his grip of his own cock-pit and before he could grasp the interplane wires and struts. And all this time the big propellers were whirling within an inch or two of his legs as he straddled the fuselage, while the machine lay over on a 45-deg. bank and a wind current somewhere up towards the eighties tried to push him off.

However, he passed the danger zone, and the machine, relieved of his weight aft, began to get her tail up a bit and come onto a more nearly level keel sideways. He twisted himself through the cross-wires, crawled over the pilot's head, and then shot forward into the cock-pit in front. Even this last stage was sufficiently perilous, for he had to let go the wires and struts after passing over the pilot, and as the machine was now flying level he had to go down-hill into the cock-pit with seemingly nothing in front but air, and no grip on anything. But he did it, and a very few minutes afterwards the machine made a faultless landing.

The fact that Dodson had been seen by the people on the ground to go up in the aft seat and come down in front was, I think, undeniable evidence that he had done what the pilot said he had done. But all that the people on shore saw was the machine doing horrible side-slipping turns at somewhere between 500 and 1,000 feet, quite unlike the pilot's usual perfect flying.

Some day, I suppose, we shall have some sort of medal for saving life in the air, something like the Albert Medal, or the Royal Humane Society's Medal for saving life at sea. If so, they ought to be retrospective. Several Service pilots have won them already, and Dodson ought to have one also—although he is not in either Service.

If one gave one to the pilot in this case, I rather fancy he would disclaim having done anything out of the ordinary, but many another pilot in the same predicament would just have shut off his power and have hoped for the best, without thinking of the side-slip trick to start with.

AN AUTOMATIC LANDING.

As a contrast to the machine which refused to land, it is worth while to tell of a machine which landed itself in an extraordinary way. Here again it would be a trifle difficult to produce evidence which would convince a court of law, but as the yarn was told me by an officer who was very much on the spot at the time it may pass for true.

Two R.F.C. officers had been out Hun-strafting on a trade designed and built pusher biplane of the type

known colloquially, if cacophonously, as a "gun 'bus." How many Huns they fell in with I do not know, but apparently there were several, for the machine was very badly punished. Either the engine or the petrol supply was hit, for the engine stopped. The aileron and elevator controls were shot away, and one rudder wire also. Thus the pilot was left without any control over the machine except the ability to steer her round in one direction, and without any possibility of flattening out to land. Steering her round would probably have called for the use of the other missing controls, so, when the elevator went, the pilot had nothing to do but sit still and hope for the best.

Happily for the crew, the machine was heading for the British lines at the time, and continued on her course undisturbed. What the feelings of the crew were during that glide one cannot even imagine, but "an agony of suspense" would probably put it mildly. The pilot might have the satisfaction of watching his air-speed indicator and of working out whether she would hit hard enough to smash up, or of watching the line of descent to see whether she was going to hit a town or a forest or a field.

However, as the story was told to me, the machine chose to land in a field, of course without flattening out, wiped off her under-carriage, and stuck her nose into the ground. After which the crew extricated themselves from the wreck unhurt.

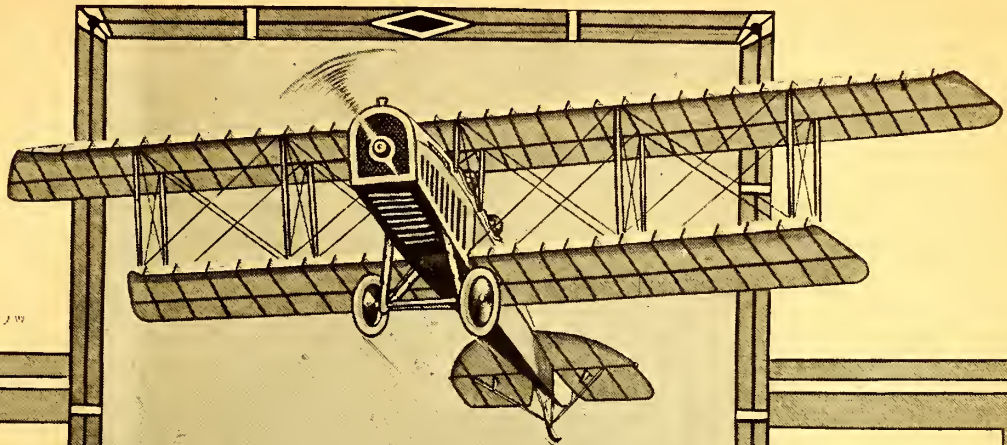
Which incidentally is an argument in favour of steel tube nacelles—or bodies—in pusher biplanes, for I have heard of a similar machine flying straight into a hillside in a fog without crumpling the nacelle sufficiently to telescope it on to the crew.

LANDING IN REVERSE.

One of the cleverest acts of the war, the story of which may be accepted as true in the main, since it appeared in official language in official documents when one of the chief actors received the Military Cross, occurred a good many months ago in France. Two officers, we may call the pilot A and the observer B, were out on reconnaissance on a Government designed tractor biplane. They were attacked by Huns of superior speed, and A was shot in the right arm. He held on gamely till he fainted from loss of blood, but before "going right off"—as the feminine phrase has it—he headed for home. Just then, or before, B was hit badly in the left hand. After a while, B, thinking the machine was behaving a trifle erratically, looked back and saw A hanging helpless against the side of the fuselage, and realised that he had to get the machine down himself somehow. He was not a pilot, and, anyhow, the machine was not fitted with dual control, so the situation was somewhat difficult.

However, he had done enough flying as a passenger to have acquired a general idea of piloting, and he distinctly had a head, so he set to work to get down. Seemingly he could not get at the switch or throttle. All he could do by kneeling on his own seat and leaning over the intervening body-work to the pilot's seat was to reach the control lever. Even then he was practically stretched out full length, and facing towards the tail of the machine, so he could not turn half-round to see where he was going.

One gathers that he experimented for a little while with the elevator and ailerons to find out how much movement of the lever was needed to give certain movements to the machine. Also, it seems that the pilot's feet had slipped off the rudder-bar, which was lucky, for, if one foot had stuck, the machine would have flown round in circles, and B's experiments with aileron control might have resulted in a spiral spin without a possibility of checking it. Anyhow, having acquired some notion of elevator control, B proceeded to stop the engine by turning off the petrol by means of the tap in his own compartment. Then he resumed his position of *marche en arrière*—as the French might call it—and experimented some more with elevator

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control minus the effect of propeller slip-stream, descending rapidly the while.

As in the previous tale, it was a matter of luck whether the machine hit a town or a field, but one assumes that B saw clear country in front of him before stopping the engine. Many a good pilot has told me that he judges his height in landing by looking sideways along his wings instead of right ahead, because one is apt to be deceived as to distance by the ground in front rushing up and under one at the same time, and I suppose B must have judged his height in much the same way. Anyhow, he seems to have flattened out at about the right moment, for, if the machine had not run into some obstruction and damaged itself, it is said that it would have been quite a good landing. In any case, neither A nor B was hurt by the sudden stoppage of the machine, though unhappily A's arm has been useless ever since, and I am told that poor B has lost his left hand, though he got his Military Cross as some consolation for it.

This must be about the first case on record of a man learning to fly wrong way round, at any rate so far as British aviators are concerned, though in the early Bréguets with a double-sided wheel it was apparently a regular habit to fly facing the wrong way, albeit on a comfortable seat, and not extended *ventre à l'air*, so to speak.

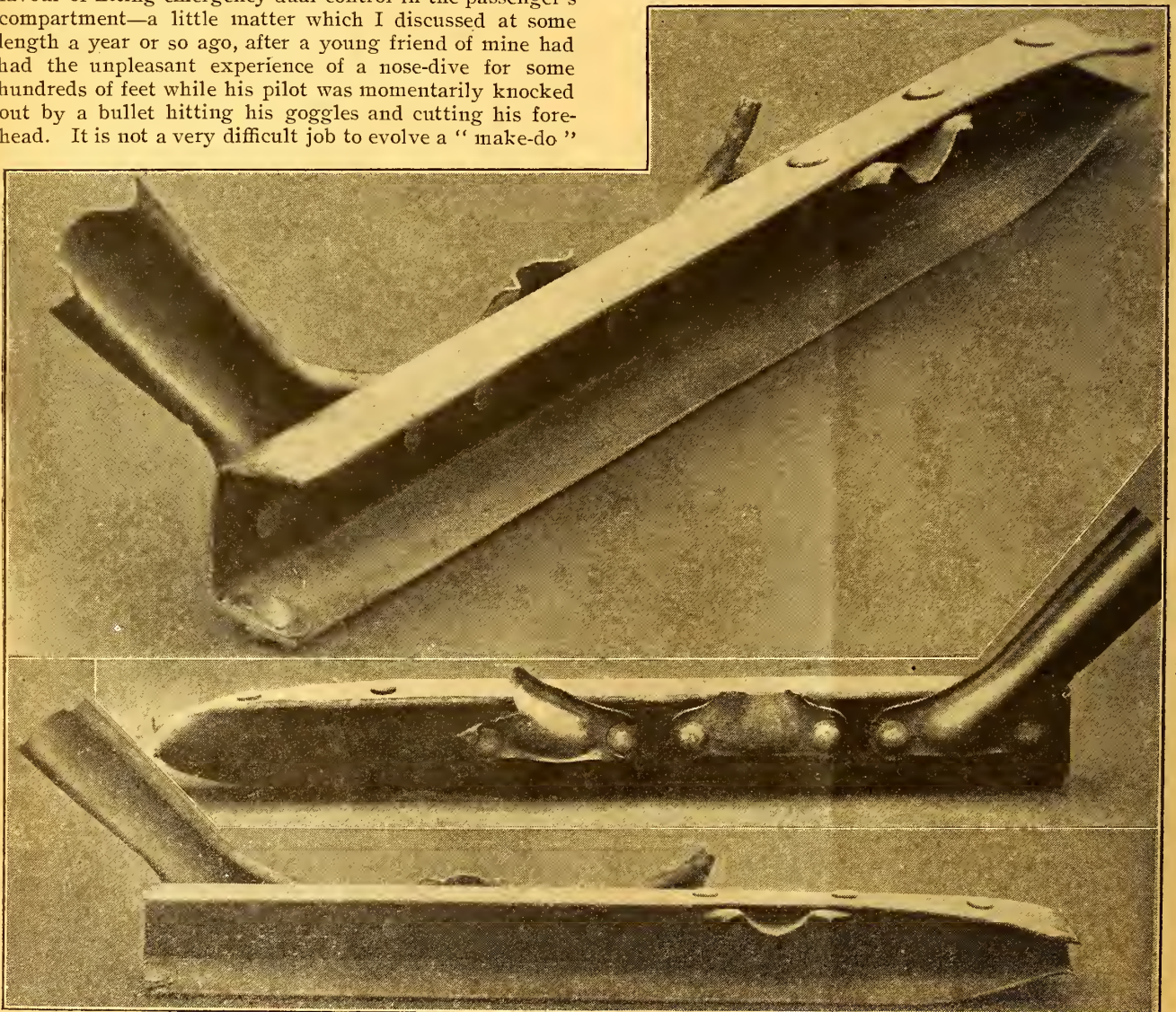
Incidentally the episode is rather a good argument in favour of fitting emergency dual control in the passenger's compartment—a little matter which I discussed at some length a year or so ago, after a young friend of mine had had the unpleasant experience of a nose-dive for some hundreds of feet while his pilot was momentarily knocked out by a bullet hitting his goggles and cutting his forehead. It is not a very difficult job to evolve a "make-do"

supplementary control, but, if it is in general use now, which I doubt, it has arrived quite lately.

A gruesome story is in general circulation of a passenger bringing a machine down safely by climbing out of his own seat and sitting in his dead pilot's lap—a clever and nervy thing to do; but that kind of landing, as well as the simple landing in reverse described hereinbefore, can be avoided if dual control be a standard fitting on all machines with two or more seats. After all, it is rather a quaint idea to give a man a Military Cross for making good at considerable personal inconvenience and risk what might seem to some critics a deficiency in the original design of his machine.

There are plenty more simple little stories of this kind going about as gossip in the Flying Services, and most of them bear *prima facie* evidence of being true in their main features, even if details which do not affect the main point of the story may be inaccurate. One can always find people to quibble over details in the hope of discrediting the general trend of one's narrative.

However, so far as these little tales are concerned, I trust they may convey to those readers who are more or less new to aviation some notion of the pluck and luck which seem to be the combined prerogative of those who are daily "in peril in the air," and that even to Service fliers who do not know of these particular incidents they may be not without interest.—C. G. G.



HOW A ZEPPELIN IS MADE.—A portion of Zeppelin girder from one of the ships recently wrecked. This shows the section of the channel aluminium alloy, and also the method of riveting the cross-stays.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE R.F.C. ENQUIRY COMMITTEE.

Doubtless many readers of this paper will expect to see in this week's issue a very full report of the evidence which has been given before the R.F.C. Enquiry Committee. Such readers will, unfortunately, be disappointed, so it may be well to explain to them why there is no report.

In the first place, certain evidence has been given, and certain reports have been read *in camera*, and because this portion of the Committee's business has been transacted in secret session it is obvious that it cannot be reported. Secondly, much of the matter disclosed in open court is concerned with dates and figures about and performances of aeroplanes which should not be published, in the interests of the Service.

What is left after the deduction of non-publishable

material is really scarcely worth publishing at all, and may be read in the daily papers, of which the "Times," owing to Lord Northcliffe's keen interest in aviation, gives by far the most voluminous reports.

It will be time enough for this paper to discuss the work of the Committee when its report is made public—which will probably not be till after the war, seeing that so much of the inner history of the R.F.C. has been investigated. Meantime, one may say that the Committee is earnestly endeavouring to discover the truth under very difficult circumstances, in view of the fact that it has no power to subpoena witnesses. One fears that it will have to form its ultimate opinion on its knowledge of men and of the world rather than on evidence.—C. G. G.

POLITICS: AND PETROL.

Thanks to some fifty years of free, effortless instruction, mis-called education, most English people have gradually forgotten how to think about anything—apart from their immediate personal shopkeeping—for five whole minutes together, so as to get at any reasoned conclusion. Also, they have mostly lost all the habit of recording experiences called memory for any period between the previous five weeks or five years. And their self-selected "representatives"—who possess every political instinct except those of government, leadership, and timely honesty—and their popular Press take every care to prevent their ever regaining either faculty. Consequently, as some thinking has occasionally to be done in the course of the nation's business, we have come to depend not upon these—and least of all upon experts and professors, literary gents and big-shopkeepers—but most surely upon the comparatively unlearned public-school product whose self-knowledge and sense of government has led it into the House of Lords, where the atmosphere of independence of anybody, alone breeds responsibility to everybody.

Really, a Peer has no need to go there at all, unless minded to try and help. He has nothing to gain by going, no more to lose by staying away. However, there the newest-made Devonport may become a despot—most usefully, too, on occasion—but at least he ceases to groce or grovel, even in spirit, being now a peer and having lost the need. There the anti-type Curzon may go on holding whatever Curzon held; including his voluntary trust for any part of the common weal next to his hand. There, again, one looks to a Derby for deliverance in a crisis—if not quite in his chosen way—without delay or drifting. Of course, Haldanes may happen, like wax-moth in an otherwise wholesome hive; a Reading sit impassively complaisant where Russell of Killowen sat. None the less are they accidents; contrasts, not types; and accidents occur in the best-regulated House. So, rightly or wrongly, the popular belief is that, while Walpole elsewhere, upon his own word, has always his price, it is next to impossible to get at Bolingbroke; and quite certain that any contractor who tries to square Wellesley will be hanged that day.

All of which helps to explain why ordinary Englishmen quite probably love a lord; out of a kind of vague gratitude for his quaint tradition of working for no material gain as well as he knows how, and playing the game. Also, why dozens of us—in view of the newer nobilisations—would gladly accept peerages and hereditary service to-morrow morning if we might still remain commoners outside Parliament. Unfortunately, there is no third Chamber for the untitled aristocracy. Therefore—until another day—no clean place to sit nor administrative scope for the plain, simple gentleman that the people put their money on every time. Because they know he is not after any of it—being nobody's kept man—for self or supporters; and that he probably does not know how to set about cleverly robbing them of anything, even their least liberty. Beside whom, too—as this war chiefly shows every day—they will cheerfully die all manner of death. Which is also the paramount reason why he and they are now certainly winning it, in spite of all the politicians, plunderers, and paymasters in Whitehall, Wall Street, or the Judengass.

So, the whole fashion of Parliament awaiting reshaping until after the war, this aristocracy of England's real people at their best, goes unrepresented, impuissant, disabled, until its Cromwell-moment. Meantime, it is clear that we can trust the House of Lords with our honour, dignity, and what is left of our liberties; and its voluntary executives for any outside work that may be needed. They have much to do from now on, all the way from aviation to apple-transport. But there will be only one House to clean out, "mend or end," after the war. It will not be theirs.

Thus one turns from the chiefly referential and the entirely unrepresented elements of Parliamentary government to the extremely mixed assemblage that is paid and supposed to be administrative, but cannot bring itself to administer any single

thing without endless discussion and equivocation until the whole purpose and utility of that thing are clean destroyed by delay. An assemblage mainly of lawyers, utterly unable to distinguish between abstractions and realities, at best. At worst—and one must take worst with best—containing its full proportion of cranks and faddists, kept placemen and political adventurers, rogues and grafters, beyond all conception of clean men. Withal, one as capable as any in the world of rising nobly to great moments: but unfortunately incapable of sustaining its exaltation and translating it into great action beyond the moment.

Now, it is the hall-mark of the rogue that he cannot believe in the existence of other people's honesty. Unfortunately, it is also the mental habit of the most honourable lawyer; more unfortunately still, counterbalanced by an accessibility to special pleading as such that is something more than credulity. It is a sublimation of the unreal into the shape of fact until it appears to take its very substance. Which is specially disastrous in administrative business.

So, side by side with the slackest supervision and perfunctory internment of enemy aliens, the immediate result was a general Act for the better defence of the Realm, personally drafted by the highest legal authority in the land. So general that you, or any less scrupulous person entrusted to work it, might make it include anything said, written, done or proposed by any British subject in the world. Or defend anything so said, written, or done by yourself beyond attack.

At a stroke you might make yourself, as a member of the Government, legally above the common law of the land to do anything you chose. Or to keep it hid. Even to imprison without trial any Englishman on any pretext you chose to read into the universality of that Act. And so with sentries ashore and warships afloat, you might be secure against all but lynching. No doubt that some strange Druidic or Talmudic scripture might be fulfilled.

That this Act, within a month of its enactment, became patently and derisively known as the Defence of the Government Act is too recent history to matter. Neither, for any present purpose, does it matter why one American firm—which merely as a Wall Street concern would be none too happily related to industrial America—was chosen to represent Great Britain for the purpose of supplies and munitions of war, on commission. Or whether the results of that appointment have been fortunate or all but disastrous. It is at least common knowledge that, supplemented by Orders in Council, it shortly became impossible under that Act for any Englishman to offer to supply his own Government, or that of any Ally, with the most urgently needed munitions except through that firm. Or whether, again, essential supplies went short at any time because industrial America mostly preferred to do its business more directly, perhaps cheaper, than through that firm, and so, as neutrals, were the more open to listen to enemy offers. Finally, whether the whole business was merely a huge blunder, covered more or less effectually by the Act, or—?

Nobody knows, so nobody can say. None of these points matter, *per se*. Whatever happened, happened. Or did not. And as the war may well be over before they are forgotten, we may be sure that the exact facts will be insistently discovered in due time. But as there is no question about the terms of the Act and the duly gazetted Orders in Council, it is just as well to mention them lest, by exactly the same process—for which the present allegations of shortage may be merely a preparation—the same prohibition may be applied to the importation of petrol by any except one or two firms on the Government's list of suppliers. At any rate, all the signs are shaping that way: and nothing is more certain—it is shouted really from every hoarding—that ignorance, apathy, or tolerance on the part of the British motoring public will again be traded upon, as they deserve, by politicians and exploiters of every kind.

On the other hand, nationally speaking, except for its culpable neglect to build sufficient storage tanks for the readily estimated

There are Opportunities to-day that will never Return

THERE was once a sweet lady who was married to a cross-grained and bad-tempered old farmer. One morning, after a specially violent exhibition of the master's temper, the maid said, "Why ever did you marry such a man?" And her mistress replied, "Go down the lane, Mary, and bring me the straightest stick you can find; but you must never turn back. If you pass by a stick because you don't think it is straight enough, you must not go back to it." Mary went and saw sticks innumerable, and determined to bring back a very straight one. She passed by many fairly good sticks, but went on and on, thinking always, "I shall see a straighter one soon." But at last, as she neared the end of the lane, she found that, if she was going to take a stick back at all, it would not be a very straight one; she had waited too long. When she returned, her mistress said, "But, Mary, that is not a very straight stick, is it? Surely there were many straighter sticks than that? Now, Mary, you know why I married the master. I was always spurning the good average opportunities, and waiting for the perfect husband; but I waited too long, and finally I had to take the master." That is a true tale; there is no need to point the moral.

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war needs of the Navy, the record of Mr. Asquith's Government in the matter of petroleum supplies has its distinct credit as well as its debit side. Long before the war the most capable Civil Lord the Admiralty ever knew had the happy inspiration to purchase on behalf of Great Britain practically the entire ownership of the Persian oil-fields. Politically, this purchase nullified at a stroke the futile handling of Persian affairs by the most incompetent Foreign Minister we have ever had since Bute's time. Technically, too, nothing could have been better, as the oil from these fields happens to yield a great percentage of the very type of fuel-oil our warships need, with hardly any lubricant product to make its use as fuel-oil extravagant; with but little kerosene or benzine, and no sulphur. Geographically, too, this purchase was fortunate beyond words, for not only did it give us a supply-base in the centre of the Eastern Hemisphere, but it afforded a permanent check in the Persian Gulf to the Bagdad Railway and the German dream of conquest therewith.

But it was a comparatively undeveloped field, and, in any case, had to be held. Hence, chiefly, the Mesopotamian Expedition. Only, you cannot hold effectively if you cannot attack and push forward. Subsequent failures and their causes are too fresh in public memory to need recapitulation. But none of these things affect the original soundness of the Government's policy concerning petroleum supply in the abstract.

However, in detail administration there is always a wrong as well as a right way of doing the right thing: and we may always depend upon the civilian minor official to choose the former, despite all professional advice. Military and naval needs must, of course, outweigh all other considerations, from the outset of war and as much beforehand as possible. Unquestionably you must make sure not only of all the transport you need, but twice as much for a margin. But here your estimate of your needs comes to depend on your conception of your transport means, and its exact use. If that is wrong, you will far exceed your needs and waste half the efficiency of what you have. Now the Admiralty and even the Navy conception of a ship is that of a mere pontoon or barge, to be moved here or there "as requisite." The mercantile conception, on the other hand, is that of a floating goods train kept always moving, and perpetually loading or clearing as fast as possible on congested goods platforms.

Now since petrol must come in tank-steamers, we are told for an excuse, and an explanation of its alleged shortage, that tank-steamers tonnage is not available. This is only true because of the wastage of tonnage. For of all the shipping sunk or damaged by U-boats during the war to date, not more than a score of tankers have ever been damaged, let alone sunk outright. But if, having commandeered at the outset of war far more tanker tonnage than you could possibly need, or a practical conception of its use, you go on commandeering, you may well keep ships usefully out of neutral or enemy hands, but you will start a growing shortage unless you use them judiciously or re-charter them to British or allied shippers under restrictions.

And then if, instead of really using your tankers in the efficient mercantile way, you employ them Admiralty fashion for a voyage or two, and then lay them by unused or empty until you think you may possibly need them again; or if you use them as water-carriers, to land undrinkable water to a beleaguered expedition "within a few miles of victory"; or if you rip the tanks out and

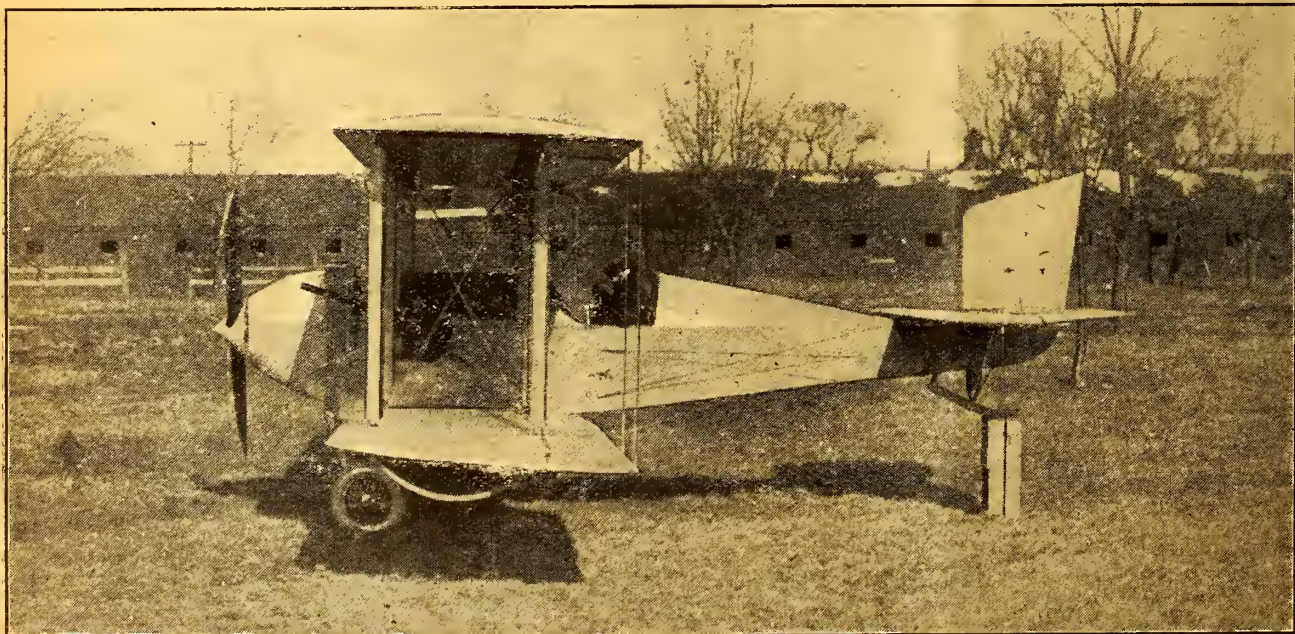
try to use the ships as troopers or mule transport-boats, failing disastrously; or if, because of your neglect to build storage tanks, you not only continue that neglect but use tankers after a single voyage as store-depot ships—well, naturally, you soon create a disastrous shortage of tonnage. And a hold-up. Also enormous profits for the free balance, especially when neutral owned in Norway and Holland. Which may be why current rates are £9 a ton, whereas the pre-war rate was about 25s., and less than nine months ago the rate was only 45s.

Yet only a few weeks ago we were told that there was no shortage of petrol, nor likely to be any. Quite true, for once. There isn't any shortage to-day, really, of petrol actually landed here and in France: or in floating storage "as requisite." Only phenomenal and purposed waste beyond conception "according to regulations." The further facts are that the great petrol interests—who happen to own most of the tank-steamer tonnage under our flag—though they have suffered from tonnage scarcity in regard to public supplies, have naturally not been hindered from using their own commandeered boats to fulfil their Government contracts at 8d. a gallon and less. So easily have they done this that not only the Army in England, but the B.E.F., the Navy, and the Air Service have not only all the petrol they need, but enough to wash cars and transport wagons with by official regulation. So while the contracted-for petrol at a low price—and a profit—is being deliberately wasted wholesale, an artificial scarcity of uncontracted-for petrol is created, so that the stuff may be dribbled out to the motoring public at—just as much as they can be fooled into paying for it.

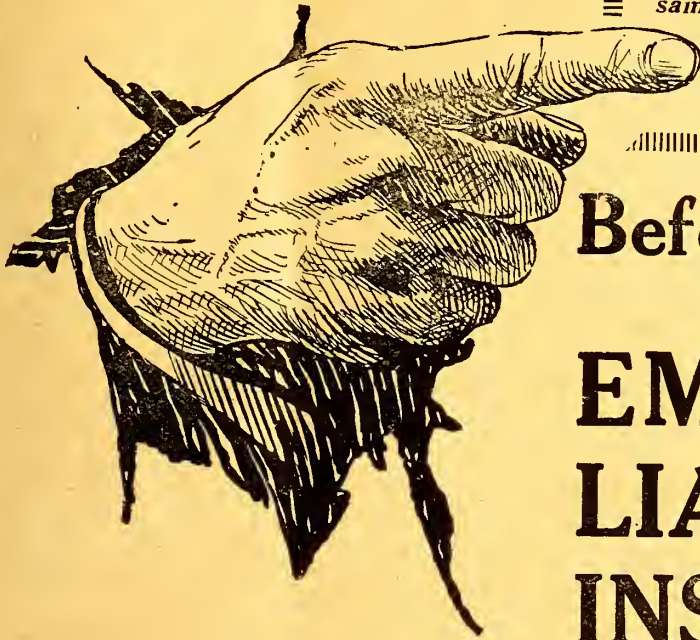
If the Government would release but one-quarter of its wasted tanker tonnage—it could release half, or two-thirds, under proper practical mercantile management, and yet be as well served—the shortage of transport and of petrol might end to-morrow. That might or might not suit the monopolist importers. They, professing great concern, say that it would: so they can be taken at their word. But would it suit the politicians? Hardly, as a damning admission of departmental incompetence and muddle against which they were warned from the first.

Now motorists had their chance to combine to procure their own petrol in their own ships some four years ago. And as ten-year time-charters are still to be had, they have that chance still. Which, nevertheless, would require some months of organisation up to retail supply-point. But as the present pressure is deadly, though artificial, it needs immediate combination in another way. And as both tonnage and petrol actually exist, and are merely withheld, there is nothing unpatriotic in the proposal to withhold all motor vehicles from public service or private use at any sacrifice until the urgent release is granted. Within a week—just as Labour did, because it had solidly combined and for no other reason—we should get that relief. And the relief would last long enough until we could combine further to procure our own future supplies. Let us then fill up our petrol cards by all means. But we are under no compulsion to use our cars until we get what we want. As we shall. But only if we combine. As we must, because the future of aviation—a hundred times more important to this country even than motor transport—depends in just that measure upon our present combination. And action.

G. DE H. S.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

NAVAL AND MILITARY AERONAUTICS.

From the "London Gazette," June 20th, 1916.

ADMIRALTY, June 16th.

ROYAL NAVAL VOLUNTEER RESERVE.—10 be Sub-Lieut. :—Flight Sub-Lieut. Arthur S. Ince, D.S.C., Feb. 3rd, 1916; commission as Flight Sub-Lieut., R.N., terminated.

R.N.A.S.—To be Flight Sub-Lieut. :—Act. Sub-Lieut. Robert V. Goddard, R.N., May 15th, 1916.

WAR OFFICE, June 20th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Squadron Comdrs.—From Flight Comdrs.—Maj. R. A. Bradley, N. Staff. R.; and to be temp. Maj. while so empld.—Lt. (temp. Capt.) E. L. Gossage, R.A.; Sec. Lt. (temp. Capt.) P. Babington, Hamps. R., T.F. (June 1st).

Flying Officers.—Temp. Sec. Lt. F. M. Ballard, Gen. List (Nov. 30th); Sec. Lt. N. C. Millman, S.R. (May 27th); Sec. Lt. A. L. Clow, Oxf. Yeo., T.F.; Sec. Lt. R. W. Young, S.R. (May 30th); Lt. G. M. V. Bidie, R. Scots, and to be seed.; Sec. Lt. (on prob.) A. L. M. Shepherd, K. R. Rif. C., S.R., and to be seed.; Sec. Lt. H. H. Baron, S.R.; temp. Sec. Lt. G. B. A. Baker, R. Berks R., and to be transf. to the Gen. List; Sec. Lt. (temp. Lt.) L. W. McArthur, H.A.C., T.F.; temp. Sec. Lt. R. B. Fricker, D. of Corn. L.I., and to be transf. to the Gen. List (May 31st); temp. Lt. A. W. Morey, R. Scots, and to be transf. to the Gen. List; Lt. R. L. Keller, R. War. R., S.R., and to be seed.; Sec. Lt. M. Allport, S.R.; temp. Sec. Lt. F. Nuttall, Gen. List; Sec. Lt. D. J. MacDonald, R.G.A., T.F., from an Asst. Equipment Officer; Sec. Lt. A. H. G. Fellowes, S.R. (June 1st); Capt. L. S. Charles, Worc. R., S.R., and to be seed.; Lt. C. G. Burge, York and Lanc. R., from a Flying Officer (Observer); Sec. Lt. (temp. Lt.) P. Grosset, Highland Cyclist Bn., T.F.; temp. Lt. J. C. Liddle, North'd Fus., and to be transf. to the Gen. List; temp. Sec. Lt. R. F. Sinclair, Manch. R., and to be transf. to the Gen. List (June 2nd); Lt. J. A. N. Ormsby, Can. Motor Machine Gun Serv.; Sec. Lt. (on prob.) V. J. Whitaker, Linc. R., S.R., and to be seed.; temp. Sec. Lt. H. B. Hurst, Gen. List; Sec. Lt. J. F. Gordon, Gord. Highrs., and to be seed. (June 3rd).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—Sec. Lt. (on prob.) E. B. P. Barrow relinquishes his comm. (June 8th).

Sec. Lts. (on prob.) confirmed in rank :—G. Iredell, N. C. Millman, M. Allport, H. H. Baron, R. W. Young, A. H. G. Fellowes.

To be Sec. Lts. (on prob.)—W. M. Bevan, H. F. Wright (May 3th).

TERRITORIAL FORCE.—CYCLIST COMPANIES, DIVNL. MTD. TROOPS.—HOME CTIES.—Sec. Lt. D. S. Johnson is seed. for duty with R.F.C. (May 27th).

* * *

From the "London Gazette" Supplement, June 21st, 1916.

WAR OFFICE, June 21st.

REGULAR FORCES.—MEMORANDA.—To be temp. Sec. Lts. :—Lee-Corpl. Harold E. Goody, from R. Fus., for duty with the R.F.C.; May 27th, 1916. 1st Cl. Air Mechanic Lewis S. White, from R.F.C., for duty with the Mil. Wing of that Corps; June 3rd, 1916.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—To be Sec. Lts. (on prob.), May 13th, 1916 :—Geoffrey Gilling, John H. Inskip, Gerald V. Hirst, Francis L. Wellington, Viscount Combermere.

TERRITORIAL FORCE.—INFANTRY.—YORK AND LANC. R.—Sec. Lt. (temp. Capt.) L. P. Aizlewood is seconded for duty with R.F.C., May 17th, 1916.

* * *

The following extracts from dispatches from General Sir John Maxwell, K.C.B., C.V.O., C.M.G., D.S.O., Commanding the Force in Egypt, on the military operations in the Egyptian Command, were included in documents issued as a supplement to the "London Gazette," dated June 21st.

DISPATCH No. 1.

Headquarters, Canal Defences, to the G.S. Headquarters, Cairo. Ismailia, February 11th, 1915.

Preparations for Defence.—The detachment of the Royal Flying Corps was organised, staffed with observers, and equipped with accommodation for its planes.

General Summary of Events.—The country to the east of the canal within the radius of our aeroplane reconnaissances remained clear of formed bodies of hostile troops, though frequently visited by Bedouin patrols which, in some cases, were accompanied by German officers in Arab dress.

On January 18th a hostile force of 8,000-10,000 was located near Bir-es-Saba by a French naval hydro-aeroplane, and on 22nd a Turkish force was reported to be at Moiya Harab, having arrived there from Gifgaffa. This was confirmed by aerial reconnaissance the next day, and about the same time reports of the presence of hostile troops at Ain Sadr were received, and our mounted troops obtained touch with hostile patrols near Bir-el-Duedar.

At Kantara.—On February 1st very efficient service was rendered by the detachment Royal Flying Corps, several reconnaissances over the enemy's lines being undertaken during the day.

On the 5th instant our aeroplanes reported that the enemy were retiring towards Katia, while those who had been in front of No. 2 Section appeared to have concentrated about Gebel Habeita.

On the 7th, however, our aeroplanes found this camp deserted. Mabeuik was also found to have been vacated, and the nearest enemy on the northern line appeared at Bir-El-Abd.

In conclusion, I desire to express my high appreciation of the valuable work done by the pilots and observers of the French hydro-aeroplane squadron and the detachment Royal Flying Corps in the numerous reconnaissances carried out by them previous to and during the advance of the enemy. They were constantly under shrapnel and rifle fire, and carried out their difficult and dangerous duties with courage, resourcefulness, and success.—I have, etc.,

ALEX. WILSON, Major-General.

DISPATCH NO. 2.

From the General Officer Commanding, Canal Defences, to the General Staff, Army Headquarters, Cairo.

Headquarters, Canal Defences, Ismailia, August 1st, 1915.

For the remainder of February and till March 22nd no incident of note took place. From information received from agents and through aerial reconnaissances, it appeared that during this month the Turks had concentrated mainly at El Arish and Nekhl.

On March 22nd an infantry patrol moving from Kubri Post encountered a force of some 400 men north-east of that post at dawn. The enemy withdrew on being engaged by troops from the nearest posts, and a subsequent aerial reconnaissance discovered a force of some 800 infantry and 200 mounted men with guns about ten miles east of the canal.

Towards the end of . . . the month reports were received of a considerable concentration of the enemy near Es Sirr, some eighty miles due east of Ballah. These reports were verified later by aeroplane observation, which estimated the hostile force as some 4,000, with guns.

On April 28th an aerial reconnaissance located a body of the enemy in bivouac near El Hawawish.

At daylight on 29th an aeroplane found Hawawish evacuated.

ALEX. WILSON, Major-General, Commanding Canal Defences.

LIST OF RECOMMENDATIONS.

ROYAL FLYING CORPS.

Massy, Bt.-Maj. S. D., 29th Punjabis.
Reilly, Capt. and Bt.-Maj. H. L., 82nd Punjabis.
Rickards, Capt. G. B., Spec. Res.
Royle, Capt. L. V. A.
Ross, Bt.-Maj. A. J., R.E.
Twccdie, Lt. D. R.

DISPATCH No. 3.

Army Headquarters, Cairo, March 1st, 1916.

During February part of 30th Squadron Royal Flying Corps, under the command of Brevet Major S. D. Massy, I.A., with headquarters at Ismailia, carried out daily reconnaissances without a single important accident.

The French Naval Seaplane detachment, with headquarters at Port Said, under the command of Capitaine de Vaisseau de l'Escaille, whose services were placed at my disposal for intelligence purposes, was continually employed in reconnoitring the Syrian and Anatolian coast from the requisitioned vessels "Raven" and "Anne." The results of their work were invaluable. The "Anne" was torpedoed near Smyrna during an armistice while employed by the Royal Navy, but was fortunately able to reach Mudros, where she was patched up and returned to Port Said.

I cannot speak too highly of the work of the seaplane detachment. Lengthy land flights are extremely dangerous, yet nothing ever stopped these gallant French aviators from any enterprise. I regret the loss of two of these planes whilst making dangerous land flights over Southern Syria.

(Relating to operations on the Western Egyptian front.)

On December 11th air reconnaissance disclosed the presence of the enemy in some force at Ras Manaa, about thirteen miles west of Um Rakhum.

On January 19th aerial reconnaissance discovered the presence of a considerable force of the enemy at Hazalin, twenty-five miles south-west of Matruh, the camp comprising at least 100 European and 250 Bedouin tents, including that of the Grand Senussi, which was recognised by Captain Royle, the observer.

On January 22nd, air reports showing that the enemy's position at Hazalin was unchanged, a force set out with General Wallace in command.

The Western Frontier Force owes much to the Royal Flying Corps, whose work was, as always, of a high order. Special mention should be made of a flight by Lieut. Van Ryneveld to Qara, by Lieut. Tipton from the Fayum to Moghara, and regular flights to Baharia. The distances covered were very great, and flights of 200 miles have become quite common.

J. G. MAXWELL, General,
Commanding the Force in Egypt.

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DISPATCH No. 4.

Army Headquarters, Force in Egypt,

Cairo, March 16th, 1916.

My Lord,—In continuation of my dispatch of March 1st, 1916, I have the honour to submit the names of officers and other ranks whom I desire to bring to your notice:—

PART I.—In connection with operations on the Western Front.

PART II.—In connection with Administration in Egypt.

I have the honour to be, my Lord, your most obedient servant,

J. G. MAXWELL, General,

Commanding the Force in Egypt.

PART I.—OPERATIONS ON WESTERN FRONT.—ROYAL FLYING CORPS.—Bt. Maj. A. J. Ross, R.E.; Capt. A. G. Moore, Manch. R. (Spec. Res.); Temp. Capt. H. A. Van Ryneveld; Lt. (temp. Capt. in Army) R. J. Tipton, R.F.A. (T.F.)

PART II.—ADMINISTRATION IN EGYPT.—ROYAL FLYING CORPS.—Bt. Maj. S. D. Massy, 29th Punjab, attached R.F.C.

DISPATCH No. 5.

Army Headquarters, Cairo.

London, April 9th, 1916.

The Re-Occupation of Sollum.—Just as the preparations for the advance were approaching completion, news was received that a hostile force had occupied the Baharia Oasis on February 11th. The strength of this force, which was discovered by an air reconnaissance on the day of its arrival, was said to be about 500 men.

All this time the oases were kept under constant observation by means of aeroplanes. Very long flights were necessary, and to reduce them as much as possible a system of advanced depots in the desert was started. The credit for originating this system is due to Lieutenant (now Captain) Van Ryneveld, R.F.C., and to Mr. Jennings Bramley, of the Sudan Civil Service, and was first put into practice on the occasion of the flight to Qara mentioned in my previous dispatch.

On February 21st the hostile forces were located by air reconnaissance at Agagia, some fourteen miles south-east of Barrani. Reports by surrendered Bedouin confirmed the accuracy of this information.

A Yeomanry reconnaissance sent out at daylight on the 26th found that the position occupied by the enemy on the previous evening had been vacated during the night, but aerial reconnaissance and officers' patrols discovered him in his old position near Agagia.

On the morning of May 14th both columns moved towards Sollum; at 9 a.m. aeroplane reconnaissance reported that the enemy was evacuating his camps.

LIST OF RECOMMENDATIONS.—ROYAL FLYING CORPS.—Jenkins, Capt. F. H., Spec. Res.; Ross, Capt. and Bt. Maj. A. J., R.E.; Wellesley, Capt. Lord George, G. Gds.; Coleman, Sec. Lt. E. H., R.F.A. (T.F.); Stent, Sec. Lt. F. W., Spec. Res.; Girod, Sec. Lt. M., Ches. R. (Spec. Res.) (died of wounds).

* * *

From the "London Gazette" Supplement, June 22nd, 1916.

WAR OFFICE, June 22nd.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Asst. Equipment Officers.—Sec. Lt. (on prob.) R. N. Rowell, Spec. Res. (May 29th); Sec. Lt. (on prob.) H. Rigby, Spec. Res. (June 7th).

MEMORANDA.—Temp. Qrmr. and Hon. Lt. G. E. Staggs, from R.F.C., to be temp. Lt. (May 8th).

Sec. Lt. (on prob.) A. R. Earle, S. African Aviation Corps, to be temp. Sec. Lt., from September 18th to October 22nd, 1915.

Cpl. J. L. Trollope, from R.E., to be temp. Sec. Lt. for duty with the R.F.C. (June 11th) (Substituted for notification in the "Gazette" of June 17th).

To be temp. Sec. Lts.:—Pte. N. McN. Beaton, from Lond. R., T.F., for duty with the R.F.C. (May 13th); Sec. Cl. Air Mech. E. C. Fulton, from R.F.C., for duty with the Mil. Wing of that Corps (June 9th); Cpl. S. H. Gordon, from Edinburgh Academy O.T.C., for duty with the R.F.C. (June 17th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—The following to be Sec. Lts. (on prob.):—J. W. Baillie, F. H. Goodwin, D. S. Kennedy, M. H. Butler, G. S. McGregor, F. O'Keefe, H. J. Every, A. Edwards, C. Elphinstone, G. W. Dampier, T. E. Gorman, W. E. M. Walker, H. J. Butler, C. Kennard, G. R. Kull, A. H. Smith, T. Hayes, F. G. Garratt, E. J. Roberts, P. S. Butterworth, C. C. Morley, H. B. Burrell, G. A. H. Pidcock, E. A. Clark, L. G. Courage, K. J. Box, D. S. Evans, R. G. Fordham, A. T. Croucher, E. D. Clarke, C. J. Kennedy, S. Chappell, E. V. Tinham-Davenport (June 17th).

TERRITORIAL FORCE.—ROYAL ENGINEERS.—HAMPSHIRE (FORTRESS) ENGRS.—Lt. (temp. Capt.) B. S. Millard is seconded for duty with Anti-Aircraft Corps (May 18th).

* * *

The King has been pleased to give orders for the appointment of the undermentioned Officers to be Companions of the Distinguished Service Order:—

Commr. ROBERT MARSLAND GROVES, R.N. (Wing Commr., R.N.A.S.).

In recognition of his services in command of a Wing of the Royal Naval Air Service at Dunkirk. Commander Groves has by his personal skill as a pilot, and also by his untiring zeal, effected a marked advancement in the general standards of flying

on active service. He has on several occasions carried out successful reconnaissances to Ostend under fire, and by his own example has proved the utility and great importance of night flying.

Capt. and Brev. Maj. EUGENE LOUIS GERRARD (temp. Lieut.-Col.), R.M. (Wing Commr., R.N.A.S.).

In recognition of his services in command of a Wing of the R.N.A.S. in the Eastern Mediterranean. The present efficiency of this Wing is due very largely to Wing Commander Gerrard, whose personal example and the manner in which he has encouraged the younger officers under his command are all that can be desired.

Lieut. DOUGLAS AUSTIN OLIVER, R.N. (Squadn. Commr., R.N.A.S.).

In recognition of his services on the morning of April 25th, 1916, when he pursued out to sea the enemy fleet which had bombarded Yarmouth, and flew along the line dropping bombs, being subjected to intense anti-aircraft fire.

Flight Lieut. KENNETH STEVENS SAVORY, R.N.A.S.

Flight Sub-Lieut. RICHARD SEBASTIAN WILLOUGHBY DICKINSON, R.N.A.S.

In recognition of their services on the night of April 14th-15th, 1916, when they carried out a flight to Constantinople and dropped bombs upon points of military importance, returning safely to their base after a long flight in rough and stormy weather.

Flight Lieut. (Act. Flight Commr.) REDFORD HENRY MULOČK, R.N.A.S.

In recognition of his services as a pilot at Dunkirk. This officer has been constantly employed at Dunkirk since July, 1915, and has displayed indefatigable zeal and energy. He has on several occasions engaged hostile aeroplanes and seaplanes, and attacked submarines, and has carried out attacks on enemy air stations, and made long-distance reconnaissances.

Lieut. JOHN HENRY DALBIAC, R.M.A.

In recognition of his services as an aeroplane observer at Dunkirk since February, 1915. During the past year Lieut. Dalbiac has been continually employed in coastal reconnaissances and fighting patrols. The Vice-Admiral Commanding the Dover Patrol, in reporting on the work of the R.N.A.S. at Dunkirk, lays particular emphasis on the good work done by the observers.

* * *

The King has further been pleased to approve of the award of the Distinguished Service Cross to the undermentioned officers:—
Flt. Com. (Act. Squad. Com.) FRANCIS KNOX HASKINS, R.N.

In recognition of his services as a pilot at Dunkirk since February, 1915. He has taken part in air raids on Ostend and Zeebrugge, and has been continually employed in coastal reconnaissances.

Lieut. DOUGLAS CLAUDE STRATHERN EVILL, R.N., Flight Commr., R.N.A.S.

In recognition of his services as a pilot at Dunkirk since February, 1915. In addition to his work as a pilot, Flight Commander Evill has shown great zeal and ability in carrying out experiments connected with signalling and spotting.

Flight Lieut. JOHN JOSEPH PETRE, R.N.A.S.

In recognition of his services as a pilot at Dunkirk since February, 1915. He has taken part in air raids on Ostend and Zeebrugge, during one of which he successfully engaged a hostile aeroplane of the Fokker type, and has carried out many coastal reconnaissances under shell fire.

Flight Lieut. VINCENT NICHOLL, R.N.A.S.

Flight Lieut. FREDERICK GEORGE DARBY HARDS, R.N.A.S.

In recognition of their services on the morning of April 25th, 1916, when they pursued a Zeppelin 65 miles out to sea, dived to within a few hundred feet of it, and attacked it with bombs and darts.

Flight Lieut. CHARLES HENRY CHICHESTER SMITH, R.N.A.S.

In recognition of his services on the morning of April 25th, 1916, when he pursued a Zeppelin 50 miles out to sea, and on his return journey sighted the enemy fleet accompanied by submarines, which latter he attacked and compelled to submerge.

Flight Lieut. (Act. Flight Commr.) GEORGE HENRY BEARD, R.N.A.S.

In recognition of his services as a pilot at Dunkirk since May, 1915. He has carried out frequent reconnaissances of the coast and has continually been employed in aircraft and submarine patrols. He has twice attacked German submarines.

Flight Sub-Lieut. HERBERT GLYNN HALL, R.N.A.S.

In recognition of his services on the morning of April 25th, 1916, when he carried out an air patrol with an observer during the attack by a raiding squadron of enemy ships on Yarmouth. Although severely wounded in the shoulder by shrapnel and weak from loss of blood, Flight Sub-Lieutenant Hall succeeded in piloting the machine back to his station and landed safely.

Lieut. CHARLES WILLIAM NUTTING, R.N.V.R.

Lieut. EDWARD RAYMOND PEAL, R.N.V.R.

Sub-Lieut. HORACE WILLIAM FURNIVAL, R.N.R.

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Temp. Lieut. GERALD FENWICK HASZARD, R.M.

In recognition of his services with the Royal Marine Artillery Anti-Aircraft Brigade in France. Lieutenant Haszard has on many occasions shown great coolness and resource under heavy fire, and has for several months controlled his section in an advanced position with marked ability.

The following officers have been mentioned in dispatches:—

Flight-Commr. (Act. Squad-Commr.) Joseph Ruscombe Wadham Smyth-Pigott, D.S.O., R.N.
Flight Sub-Lieut. Isaac Henry Woolf, R.N.A.S.

* * *

His Majesty the King has been graciously pleased to confer the Military Cross on the undermentioned Officers, in recognition of their gallantry and devotion to duty in the field:—

Temp. Capt. WILLIAM MILNE, Genl. List (attd. R.F.C.).

For conspicuous gallantry and skill. When attacked by two hostile aeroplanes he drove off one, and, though slightly wounded in the face, drove the other vertically to the ground. He then at once attacked another and drove it down, being this time shot through the hand. In spite of his wounds he landed his machine safely in his own aerodrome.

Lt. (Temp. Capt.) ARCHIBALD WILLIAM HENRY JAMES, 3rd Hrs. and R.F.C.

For conspicuous gallantry when making a special reconnaissance. Owing to clouds he crossed the lines at 1,500 ft., and, seeing signs of movement in a particular locality, he came down to 800 ft. in order to get a better view. He re-crossed the lines at 500 ft. with very valuable information under heavy fire from rifles, machine-guns, anti-aircraft guns, and field guns. His engine and machine were badly damaged by the enemy's fire.

Temp. Lt. D. WILSON, Genl. List (attd. R.F.C.).

For conspicuous gallantry and skill. After his machine had been damaged in a combat with an enemy machine and was difficult to control, he continued his patrol and assisted another officer to bring down an enemy machine. Later he found another enemy machine, dived at it, and brought it down in flames within our lines.

Sec. Lt. (Temp. Capt.) ELLERT WEBSTER FORBES, 6th R. War. R., T.F. (attd. R.F.C.).

For conspicuous gallantry and skill. He was acting as observer when attacked by two enemy aeroplanes, and was wounded in the chest. On recovering from the shock he saw that his pilot was killed. Climbing into the pilot's seat he succeeded in bringing his machine back from behind the enemy's lines and landing safely.

Sec. Lt. (Temp. Lt.) JOHN ANDERSON MANN, 5th Sco. Rif., T.F. (attd. R.F.C.).

For consistent gallantry and skill. In the course of seven days Sec. Lts. Mann, as pilot, and Reid as observer, attacked no less than eight enemy aeroplanes. They drove down four, three of which were seriously damaged. The remainder were driven off, one escaping by getting into a cloud.

Sec. Lt. (Temp. Lt.) GEORGE RANALD MACFARLANE REID, 4th Arg. and Suth'd Highrs., and R.F.C.

For consistent gallantry and skill. In the course of seven days Sec. Lts. Mann, as pilot, and Reid, as observer, attacked no less than eight enemy aeroplanes. They drove down four, three of which were seriously damaged. The remainder were driven off, one escaping by getting into a cloud.

The following have also been awarded the Military Cross. The specific acts for which the rewards have been granted will be announced as soon as possible in the "London Gazette":—

Sec. Lt. DONALD ALASTAIR LESLIE DAVIDSON, R.F.C., Spec. Res.

Sec. Lt. (Temp. Capt.) HUGH TOMLINSON, R.F.C., Spec. Res.

* * *

From the "London Gazette," June 23rd, 1916.

WAR OFFICE, June 23rd.

TERRITORIAL FORCE.—R.F.C.—HAMPS. AIRCRAFT PARKS.—Lt. W. J. Stutt relinquishes his commn. (June 24th); C. A. Hudson to be Sec. Lt. (June 24th).

* * *

From the "London Gazette" Supplement, June 24th, 1916.

WAR OFFICE, June 24th.

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO REGULAR CORPS.—R.F.C.—MIL. WING.—Christian names of Sec. Lt. (on prob.) Herbert Clements Short are as now described and not as in the "Gazette" of June 10th.

* * *

From the "London Gazette" Supplement, June 26th, 1916.

WAR OFFICE, June 26th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Equipment Officer.—Lieut. G. E. W. Humphery, Spec. Res., from an Asst. Equipment Officer, and to be temp. Capt. whilst so employed. (June 8th).

MEMORANDUM.—Pte. B. M. Wainwright, from Middl'x R., to be temp. Sec. Lieut. for duty with the R.F.C. (April 10th).

SPECIAL RESERVE OF OFFICERS.—SUPPLEMENTARY TO

REGULAR CORPS.—R.F.C.—MILITARY WING.—Lieut. H. S. Coles resigns his commission (June 27th).

To be Sec. Lieuts. (on prob.): C. F. Blunt, F. A. Corbett (April 24th); C. N. Dore (May 22nd); E. V. G. B. Lennard (May 23rd).

* * *

A Supplement to the "London Gazette" for June 26th notified the following award for service in connection with Military Operations in the field:—

THE MILITARY CROSS.

Sec. Lieut. WALTER DALRYMPLE MAITLAND BELL, R.F.C., Spec. Res.

NAVAL.

The following appointments have been made in the Royal Naval Air Service:—

JUNE 23rd.—Temp. Sub-Lieut. (R.N.V.R.).—E. G. Hopcraft, entered as Proby. Flight Sub-Lieut. (temp.), seny. May 22nd, and apptd. to "President," addl., for R.N.A.S. (commission as Temp. Sub-Lieut., R.N.V.R., terminated). The following have been entered as Proby. Flight Sub-Lieuts. (temp.), seny. June 25th, and all apptd. to "President," for R.N.A.S.: C. R. Vaughan, G. W. Parker, R. B. Morrison, W. Buckley, F. H. McMaster, C. B. Ridley, C. S. Iron, C. R. W. Hodges, N. von L. Tapscott, C. R. Morrish, P. H. Mackworth, R. G. Clarke, H. L. Gaskell, K. B. Preston, D. O. Thomas, and J. de C. Paynter. Temporary commissions as Sub-Lieut. (R.N.V.R.) have been granted to the following Chief Petty Officers, seny. June 20th: P. W. Hawkins (apptd. to "President," for R.N.A.S.) and H. I. Eardley.

JUNE 26th.—Flt. Sub-Lieut.—J. H. D. M. Campbell, granted a temp. commission as Sub-Lieut. (R.N.V.R.), seny. June 19th, and appointed to "President," addl., for R.N.A.S.

JUNE 27th.—Temp. Sub-Lieut. (R.N.V.R.).—D. S. R. Kent, entered as temp. Flight Sub-Lieut., seny. March 17th (temp. commission as Sub-Lieut. (R.N.V.R.) terminated).

THE CASUALTY LIST.

Reported June 26th.

INJURED.—Huddy, Probationary Flight Sub-Lieut. Charles, R.N. Reported June 27th.

SERIOUSLY INJURED, June 24th.—Hooper, Flight Sub-Lieut. Kenneth V., R.N.

INJURED, June 23rd.—Sieveking, Proby. Sub-Lieut. Valentine E., R.N.

SLIGHTLY INJURED, JUNE 23rd.—Cave-Brown-Cave, Flight Commander Henry M., R.N. (Engr. Lieut., R.N.)

PREVIOUSLY REPORTED MISSING, NOW REPORTED, UNDER DATE MAY 11TH, 1916, TO HAVE DIED AS A PRISONER IN GERMANY.—Van Allen, Proby. Flight Sub-Lieut. Kenneth M., R.N.

* * *

STUART.—On the 21st June, from pneumonia, Lieut.-Commander Marlin Stuart, R.N.A.S. (late of Plymouth), beloved husband of Janie Stuart, aged 54.

An engagement is announced between Flight Sub-Lieut. Ivo C. Little, R.N., younger son of Mr. James Little, of Normanhurst, Stroud, and Jean Margaret, only daughter of the late Colonel L. G. Watkins, Royal Artillery, and Mrs. Leonard Watkins, Moorfield, Exmouth, and granddaughter of the late Major-General A. L. Playfair, Indian Army.

* * *

An engagement is announced between Dudley Baylis, R.N.A.S., eldest son of Mr. and Mrs. Baylis, of Inveresk, Westcliff-on-Sea, and Sibyl, only daughter of the Rev. A. H. and Mrs. Coombes, Hurstpierpoint College, Sussex.

MILITARY.

G.H.Q. COMMUNIQUE'S.

JUNE 22nd, 10.45 p.m.—Yesterday in the air there was marked decrease in the activity of the enemy, while our machines carried out a good deal of successful work in co-operation with the artillery.

JUNE 23rd.—Yesterday, in fine weather, there was considerable activity in the air along the front. There were 22 combats in the air, mostly indecisive, but two of our machines were brought down.

Our artillery obtained direct hits on two hostile anti-aircraft batteries, and the ammunition of these batteries continued to explode for 20 minutes.

JUNE 24th, 10.25 p.m.—Yesterday hostile aircraft were again active. A reconnaissance of six machines which attempted to cross our lines was attacked by our scouts and driven back. One of our aeroplanes, descending to a height of 900 ft., attacked with machine-gun fire some horsed transport and caused it to stampede.

JUNE 25th, 10.23 p.m.—We destroyed three hostile kite balloons this afternoon.

JUNE 26th, 10.32 p.m.—One hostile kite balloon in addition to those already reported was destroyed by our aircraft yesterday, making a total of six out of 15 balloons attacked. The whole six were seen to fall in flames.

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A NOTE TO SUBALTERNS.

By H. DENNIS BRADLEY.

I WISH to emphasise strongly to inexperienced officers the utter futility of equipping themselves with any but the finest quality khaki that money can buy. The fatal tendency to endeavour to save a few pounds in the purchase of kit is a most disastrous economy, and has been encouraged by innumerable London and Provincial firms who have no status whatever as military tailors. Second grade kit is absolutely useless; not only is the appearance as a rule execrable in style, but the materials and workmanship are totally unfitted to stand the excessive wear and tear of active service. The House of Pope & Bradley holds the first reputation in London to-day, and regards this reputation at stake over every military garment produced during the war. The prices charged represent the minimum at which uniforms of the best quality can be obtained, and are reasonable because the House is one of the largest buyers. The following kit incorporates at our lowest prices every essential for an officer on joining his regiment:

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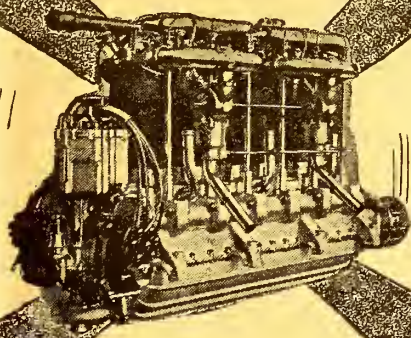
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C.D.C.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The following report, received by the War Office from the General Officer Commanding-in-Chief in Egypt, was published on June 21st:—

A most successful raid was carried out on June 19th by the Royal Flying Corps against a large enemy aerodrome about five miles south of El Arish and 100 miles from our nearest aerodrome. This aerodrome, which consisted of ten large hangars, was located on June 13th, and a strong raid was immediately planned, in which eleven machines took part.

The first machine to arrive discovered an enemy plane on the ground, apparently about to fly, as the pilot and observer were in their places, with several mechanics at hand. Our pilot descended at once to a height of 100 ft. and destroyed the plane, killing the hostile pilot, observer, and mechanics. Another enemy plane found on the ground was also destroyed.

Of the ten hangars two were set on fire and completely destroyed, while four were hit many times with bombs. It is presumed that these hangars contained aeroplanes, and in all probability at least five, and possibly more, were put out of action.

Our machines delivered their attack from a height of 600 ft., but in spite of being under very heavy rifle, machine-gun, and anti-aircraft gun fire, they continued the attack until all their bombs, 76 in number, were expended. In addition to the aerodrome, enemy camps and troops were assailed both with bombs and machine-gun fire.

We lost three machines in the course of the operations. Of these, one was forced to descend about two miles north of the aerodrome; the pilot, however, finding that escape was hopeless, set the machine on fire to prevent the enemy from capturing it. The second fell into the sea, the pilot being rescued by a motor-boat. The third was compelled to land about eight miles west of El Arish; the pilot endeavoured to carry out repairs, and while doing so he was seen by one of our escorting machines, which at once landed at considerable risk, picked him up, and flew back a distance of 90 miles to Kantara, carrying two passengers in addition to the pilot—an extremely gallant feat.

I cannot speak too highly of the manner in which this attack was carried out.

[El Arish is a small town near the Mediterranean, on the northern caravan route from Egypt to Syria, and some 30 miles west of the Turco-Egyptian border. Kantara is on the east side of the Suez Canal, between Port Said and Ismailia.]

As a net result we seem to have destroyed two enemy machines, to have damaged six sheds, which may or may not have contained machines, and to have killed or seriously injured a pilot and observer and aerodrome hands. Against this we have lost three machines and one pilot—though nothing is said of an observer on this machine. The pilot who rescued the two stranded aviators deserves recognition. It is not made clear whether enemy fire or engine failure caused our losses.—Ed.]

THE CASUALTY LIST.

Reported June 21st.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Gallie, Sec. Lieut. C., R. Scots Fus., attd. R. Flying Corps.

Reported June 22nd.

WOUNDED.—Berrington, Capt. J. S. D., Lancashire Fus. and R. Flying Corps.

Reported June 23rd.

WOUNDED.—Hellyer, Capt. F. E., Hampshire and R. Flying Corps.

OFFICER PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONER OF WAR.—Grinnell-Milne, Capt. D., R. Fus. and R. Flying Corps.

Reported June 24th.

WOUNDED.—Doune, Sec. Lieut. F. D. Lord, Yeomanry and R. Flying Corps.

Reported on June 26th.

KILLED.—Gibson, Sec. Lieut. J., Devon Regt. and R. Flying Corps.

WOUNDED.—Bell-Irving, Capt. M. McB., D.S.O., Royal Flying Corps.

Shaw, Sec. Lieut. W. R. D., Essex Regiment and Royal Flying Corps.

Anderson, Sec. Lieut. G. N., Yeomanry and R. Flying Corps.

Nixon, Sec. Lieut. W. E., K.O. Scottish Bords. and R. Flying Corps.

Roadley, Sec. Lieut. T. S., S. Stafford. Regt., attd. R. Flying Corps.

MISSING.—Rogers, Sec. Lieut. C. E., Royal Flying Corps.

Savage, Sec. Lieut. J. R. B., Royal Flying Corps.

Reported June 27th.

MISSING.—Cooke, Sec. Lieut. J., Durham L.I., attd. R.F.C.

Paterson, Sec. Lieut. D. W. S., R.F.C.

PREVIOUSLY REPORTED MISSING, NOW REPORTED A PRISONER.—Juriss, Sec. Lieut. M., London Regiment.

Reported from Base as believed to have been taken prisoners at Kut-el-Amara. Official lists have not yet been received from Turkish Government.

PRESUMED PRISONERS.—R.F.C.—Butler, 6242 2nd Cl. Air Mech. S. G.; Campbell, 445 Flight Sgt. H.; Candy, 533 1st Cl. Air

Mech. W.; Claridge, 1299 2nd Cl. Air Mech. L. N.; Dagger, 3968 2nd Cl. Air Mech. V.; Dodd, 4894 2nd Cl. Air Mech. H.; Draper, 5809 2nd Cl. Air Mech. F. G.; Eaves, 806 1st Cl. Air Mech. J. R.; George, 7578 2nd Cl. Air Mech. R. E.; Hare, 7801 2nd Cl. Air Mech. A. J.; Hogg, 1414 1st Cl. Air Mech. J.; Keefe, 5848 2nd Cl. Air Mech. W.; Nickolls, 7373 2nd Cl. Air Mech. R. G.; Ponting, 7350 2nd Cl. Air Mech. D.; Reid, 862 Cpl. A.; Read, 4475 Sgt. F.; Snell, 4351 2nd Cl. Air Mech. F.; Vincent, 2853 1st Cl. Air Mech. T. W.; Webb, 4477 Flight Sgt. A.; Welch, 4136 1st Cl. Air Mech. S.; Wells, 7870 2nd Cl. Air Mech. S. J.

DEVON R., ATTD. R.F.C.—Braund, 2900 W.

E. SURREY R., ATTD. R.F.C.—Bullin, 2102 2nd Cl. Air Mech. H.; Carpenter, 2210 2nd Cl. Air Mech. R.; Nixon, 1956 2nd Cl. Air Mech. F. E.; Rootes, 2429 2nd Cl. Air Mech. C.

HANTS R., ATTD. R.F.C.—St. John, 1243 S.

MIDDLESEX R., ATTD. R.F.C.—Clarke, 2489 2nd Cl. Air Mech. A.; Gill, 2244 2nd Cl. Air Mech. W. T. C.; Nuncy, 1851 2nd Cl. Air Mech. F.

* * *

GIBSON.—Killed while flying, on June 19th, John Gibson, Sec. Lieut., Devons, attached Royal Flying Corps, only son of the late George Frederick Gibson, of Newcastle-on-Tyne.

* * *

Lieutenant John Gibson joined the Devon Cyclists, and obtained a commission in the motor transport, transferring later to the Royal Flying Corps.

* * *

Second Lieutenant Lord Doune is the eldest son of the Earl of Moray, and is 23. He received his commission in the Scottish Horse Yeomanry in 1914. Last year he joined the Royal Flying Corps, and he has since been acting as a flying officer at the front.

* * *

At the Marylebone Coroner's Court, on June 23rd, Mr. Drew held an inquest with regard to the death of George Vernon Aimer, aged 29, a second lieutenant in the Royal Flying Corps, whose death took place on June 20th in the private hospital of the Royal Flying Corps, at Bryanston Square.

Evidence as to identification was given by the Rev. Mr. Stocke, an Army Chaplain, who stated that Mr. Aimer came from New Zealand, and had previously been engaged in a bank. Other evidence showed that on Tuesday Lieutenant Aimer was flying in an aeroplane at a height of between 3,000 and 4,000 feet when he suddenly appeared to be in difficulties. His machine swerved and wobbled, and then crashed to the ground, descending almost vertically.

Captain Sampson said Lieut. Aimer was a most competent aviator. The machine on which he was flying was in quite a sound condition, and had been flown previously that morning. It was then found to be working perfectly.

He expressed the opinion that the officer must have had the nose of his machine down too much when he was making a turn. That would cause him to be in what was known as a "spin," and from that it would be difficult to get out unless one was flying at a considerable height. [Surely Captain Sampson meant the tail and not the nose.—Ed.]

GRAHAM.—On the 18th inst., at 2, Inverness Gardens, Kensington, the wife of Lt. M. D. Graham, Argyll and Sutherland Highlanders, attd. R.F.C.—a daughter.

FRANCE.

OFFICIAL COMMUNIQUÉS.

JUNE 22nd.—As a reprisal for the successive bombardments carried out by the Germans during the last few days on the open towns of Bar-le-Duc and Lunéville, our air squadrons have effected several operations in enemy territory.

During the night of June 21st-22nd 18 bombs were dropped on the town of Trèves, where a great fire was observed. To-day a group of nine aeroplanes dropped 40 bombs on Karlsruhe—110 miles from Nancy.

Another group of 10 aeroplanes bombarded Mulheim, on the right bank of the Rhine. Fifty shells were dropped on the military establishments of the town. The effectiveness of these two bombardments was clearly observed.

Pursued by a squadron of Fokkers on returning from Mulheim, our machines engaged them, and in the ensuing fight a Fokker was brought down. One of our machines was compelled to land in consequence of engine trouble.

In the course of the day our chasing aeroplanes were also actively employed.

Sub-Lieutenant Nungesser brought down his eighth aeroplane, which fell at La Morville, in our wire entanglements.

To the south of Lihons a German machine brought under machine-gun fire simultaneously by Sergeant Chainat and Sub-Lieutenant Guynemer crashed to the earth. Sergeant Chainat, up to the present, has brought down four machines, and Sub-Lieutenant Guynemer nine.

Finally, in the region of Einville, north of Lunéville, an enemy aeroplane was brought down by the fire of our artillery.

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The two German machines which fell yesterday morning to the north-east of St. Mihiel and near the Genicourt Fort were brought down by Sub-Lieutenant Chaput, who has up to the present felled six enemy aeroplanes.

One of our squadrons chased a group of enemy aeroplanes that had approached with the intention of bombarding villages in the Meuse Valley. In the course of the pursuit one of our pilots brought down two German machines. One fell in flames to the north-east of St. Mihiel, the other crashed to earth near the Fort of Genicourt.

During Wednesday night our bombarding aviators dropped a number of projectiles on the stations and railways at Apremont, Grandpré, Septsarges, Romagne, and Brioules, and on bivouacs in the Consenvoye Wood and on military establishments north of Thionville.

JUNE 25th.—In the night of the 24th-25th German aviators dropped bombs on Lunéville, Baccarat, and St. Dié. The material damage done was slight. Some children were injured at St. Dié. Action has been taken by way of reprisals.

* * *

It is reported that the American aviator Chapman has been killed on the French front after being attacked by four German machines. He managed to bring down one enemy aeroplane.

* * *

The following is from the "Daily Telegraph" of June 24th:—

"This story of Nungesser, a French aviator, is probably unique, even in this war. When hostilities broke out he was a Hussar of 22. On September 3rd, during the retreat from Charleroi, he was mentioned in dispatches for having captured a German motor-car, put the German officers occupying it hors de combat, brought back the car and valuable papers which it contained under enemy fire, and, finally, placed his commanding officer, who was wounded, under shelter. The car was a French Mors, stolen by the Germans, and after that Nungesser used to be called the Mors Hussar. Some time after that, driving the same car, he passed some old soldiers who said: 'Why is this youth a mere motor-driver, while we are in the trenches?'

"Thereupon Nungesser refused to be a motorist any more. He became an aviator. He took part in 53 bombardments, and was thrice, as aviator, mentioned in dispatches. But in an aerodrome, while testing a new machine, he met with an accident, had his jaw broken, and sustained a wound in the skull and broken ribs. He remained five days unconscious. When he came out of hospital he was finally invalided, but this made him angry. He used influence, went back to the front in an aeroplane, and in one week brought down two enemy machines and one 'sausage.' Then he was promoted sub-lieutenant. His latest feat was to fight against six enemies—three Fokkers and three L.V.Gs. He saved himself by a brilliant idea. He dashed right among his enemies, who stopped firing for fear of shooting one another. The Frenchman came back safe, with 28 shots through his aeroplane, seven in the motor, one bullet through his shoe, and another through his helmet."

GERMANY.

OFFICIAL COMMUNIQUÉS.

JUNE 20th.—Our aviators heavily bombed military works at Bergen, near Dunkirk, and Souilly, south-west of Verdun.

A Russian biplane was forced to descend west of Kolodn, south of Lake Narotch, and was destroyed by our artillery.

We dropped bombs on the railway precincts of Vileika.

JUNE 21st.—A French aeroplane was forced down near Kemnat, north-east of Pont-à-Mousson. The occupants were captured.

Our air squadrons attacked the railway stations at Zalyessie (eight miles east of Smorgon) and Molodetchno (farther east).

A British aeroplane was brought down by our anti-aircraft fire near Puisieux, north-west of Bapaume. One of the occupants was killed.

JUNE 22nd.—Our anti-aircraft guns shot down two French aeroplanes—one south of Poivre Hill (north of Verdun) and the other near Duss. The occupants of the latter machine were captured.

Yesterday morning our air squadrons attacked troop concentrations in the Meuse Valley, south of Verdun, and this morning they bombarded the railway precincts and troop encampments at Revigny (north-west of Bar-le-Duc).

We dropped bombs on a railway bridge over the Pripet south of Luninets (in the Russian centre, east of Pinsk).

JUNE 23rd.—Yesterday enemy airmen attacked Karlsruhe, Mulheim (Baden), and Trèves.

We have to deplore a number of civilian victims. No considerable military damage could be, or was, done at these places.

The enemy lost four aeroplanes, two of them being forced to land near Nieder-Lauterbach and Lembach (both west of Karlsruhe) respectively. Of the occupants, who were taken prisoners, two were English. The other two machines were brought down in an air fight. In this fighting Lieutenant Hohendorf brought down his sixth enemy machine.

Besides these, enemy aeroplanes were brought down, one in the district of Ypres; another east of Hulluch, which was the fifth brought down by Lieutenant Mulzer, and others near Lancon,

south of Grandpré; near Merxheim, and east of Gebweiler. So that the enemy lost nine aeroplanes altogether.

Our air squadrons attacked the military works at St. Pol and an enemy camp and dug-outs west and south of Verdun.

JUNE 24th.—A German air squadron attacked the railway station of Polochany, south-west of Molodeczno, where movements of troops had been observed. The railway station at Luninets was also bombarded.

Near Haumont (north of Verdun) a French battle monoplane was brought down in an air fight. Lieutenant von Wingens near Belmont (? Blamont, in the Vosges) shot down his seventh enemy aeroplane—namely, a French biplane.

JUNE 26th.—German air squadrons attacked with bombs the British camp near Pas (east of Doullens and south-west of Arras).

* * *

It is reported from Berlin that the Herr Lieutenant Immelmann has been killed on active service. He was shot down on June 20th on the Western front, and his body has been recovered from the wreckage of his machine. Lieut. Immelmann, who was 26 years old, was born at Dresden.

The "Lokalanzeiger" says that the British called Immelmann "The Eagle of Lille" and the "Super-hawk." His method was to rise to a great height, thence descending and attacking the enemy. The paper adds that Immelmann's enemies, though they could not imitate his system, were not grudging in their praise of him.

The Kaiser intended to send him a personally written letter of congratulation on the occasion of his 12th success, but before its dispatch his 13th was announced. The Kaiser thereupon altered the figure to 13th, saying "one cannot even write as quickly as Immelmann fires."

A famous aviator, and a redoubtable opponent of the Royal Flying Corps, disappears from the Western front through the death of Lieutenant Immelmann. He was equalled in the German service only by Captain Böelcke, who was recently reported to have been brought down by a French aviator and made prisoner.

Lieut. Immelmann first appeared in the German official reports on Oct. 11th, 1915, when it was stated that he had forced an English battle biplane, flying at 13,000 ft., to descend north-west of Lille. "This officer," it was added, "has within a very short time brought down four enemy aeroplanes."

His next "victim" was shot down on Oct. 27th when a French biplane was captured, manned by British officers, who were taken prisoners. The sixth, seventh, eighth, ninth, tenth, 12th, and 13th aeroplanes brought down by him were also British machines. His last victory was recorded on May 17th, when his 15th enemy aeroplane was recorded as being shot down.

Lieuts. Böelcke and Immelmann shot down their eighth machines—both British—on Jan. 12th last, and German Headquarters reported the following day that "in recognition of their extraordinary performances, these intrepid officers had been decorated by the Kaiser with the order Pour le Mérite."

It is quite likely that the R.F.C., though relieved of a dangerous enemy, will really regret his death, for he appears to have been particularly chivalrous towards his defeated enemies. A British pilot wrote to the present writer some months ago: "This Herr Immelmann is the devil. He fires through his propeller and flies beautifully. He is much faster than the scout." One hears, also, that on several occasions British aviators have dropped in German aerodromes notes containing challenges to Lieut. Immelmann to meet them at a named height over a named spot and fight it out, but it is not recorded whether any of these meetings ever took place.

* * *

According to the "Frankfurter Zeitung" Captain Böelcke, the German Fokker star, who was recently shot down by the French, is alive and uninjured as a prisoner of war. He speaks well of the Allied aviators, as "brave and tenacious sportsmen."

"Our newspapers," he added, "often say that it speaks badly for English aviators that they are so often shot down behind the German lines. On the contrary, that is the best proof of their intrepidity."

[One cannot help being rather glad that Capt. Böelcke is a prisoner and not killed, for the R.F.C. and the French Service d'Aviation alike seem to have a high opinion of the gallantry, skill, and chivalry to their victims of the German Aviation Service, as a whole, and of the star "destroyer" pilots in particular.—Ed.]

* * *

It is reported from Switzerland that the French air-raid on Karlsruhe had a terrific effect, spreading panic in the town. The German official reports declared that there were many casualties, and persons now arriving in Switzerland, via Kreutzingen, affirm that more than 120 persons were killed by the bombs, which fell in the midst of a circus. People were out on holiday, and many were attending the show of the Hagenbeck menagerie, a well-known travelling circus, when the French aeroplanes appeared. Several bombs intended for the railway station must have fallen accidentally in the midst of the spectators. Some 115 dead were carried out, and more than 200 wounded.

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RUSSIA.

OFFICIAL COMMUNIQUÉS.

JUNE 20th.—In the region of the station of Okhotnikovo, to the east of Sarny, we captured a German aeroplane, with the pilot and observer.

JUNE 21st.—Enemy aeroplanes dropped about forty bombs on the station of Vilika.

JUNE 22nd.—During the day our artillery brought down two German aeroplanes, which fell in our lines, one two versts south of the station of Listopady, on the Bologoye-Siedletz railway, and the other near the Juk Farm, ten versts south-east of the mouth of the Oginski Canal. The pilots and observers were killed and the machines were smashed to pieces.

JUNE 23rd.—Enemy aeroplanes yesterday dropped about forty bombs on the railway station of Molodetchno (south-east of Vilna).

JUNE 24th.—An enemy air squadron dropped some bombs on Rudnia-Potchaievskia.

One of our aeroplanes dropped bombs with success on Mama-hatun.

Enemy aeroplanes dropped twenty bombs on the railway station of Polotchany, south-west of Molodetchno. One of our aeroplanes, in a daring flight over the enemy lines, was brought down by his artillery. Our aviators, Capt. Bankeiff and Lieut. Pavloff, although wounded by the continued fire of the enemy, succeeded in landing near our advanced lines.

JUNE 26th.—Yesterday morning two of our aviators, Sub-Lieut. Kvasskoff and the non-commissioned officer Vladimiroff, died heroic deaths.

AUSTRIA.

OFFICIAL COMMUNIQUÉS.

JUNE 23rd.—On the evening of June 22nd a squadron of seaplanes successfully bombarded enemy positions near Monfalcone. Early the following morning a squadron of seaplanes attacked Venice. On Forts Nicolo and Alberoni, on the gasworks, and especially on the arsenal, many full hits were obtained, causing strong conflagrations. The aeroplanes were heavily but unsuccessfully fired at, but returned safely.

JUNE 26th.—On the fronts of the Dolomites, Carinthia, and the coastal district artillery duels are proceeding. Two of our aeroplanes dropped bombs on the works at Adria.

ITALY.

OFFICIAL COMMUNIQUÉS.

JUNE 21st.—Squadrons of our Caproni and Savoia-Farman aeroplanes, amounting in all to thirty-four machines, bombarded the Pergine aviation station at the head of the Val Sugana.

They were fired on by numerous anti-aircraft batteries and engaged by the enemy defence squadrons, but returned safely, after bringing down three hostile machines.

JUNE 23rd.—In the early hours of this morning enemy aeroplanes flew over Venice and dropped several bombs. Six persons were killed and several injured, while slight damage was done to some buildings.

JUNE 25th.—Hostile aircraft dropped bombs on Tolmezzo-Portogruaro-Ponte Piave and the Grado Lagoon (west of mouth of Isonzo), causing no casualties and only slight damage.

Our Caproni aeroplanes bombarded enemy encampments on the Asiago Plateau and returned safely.

JUNE 26th.—Hostile aircraft dropped bombs near Ala and on Padua, Fonzaso (between Feltre and Trentino border), Primolano (Bsentia frontier station), and Grigne (Trentino, N.W. Primolano). There was no casualty or damage.

Our aeroplanes bombarded the enemy's parks on Monte Bover (south-east of Caldonazzo, 20 miles S.E. Trent), the railway station of Ober-Drauburg (between Villach and Toblach on the Pustertal line), and the depots at Dellach (Drave Valley, E. of Ober-Drauburg). In each of these places large fires were observed.

* * *

It is reported from Rome that on June 20th an enemy aeroplane flew over Padua at a great height and dropped two bombs, one of which caused very slight material damage and slightly injured five workmen.

* * *

Variety is a spice of existence; hence the Spaniard devours "olla podrida," the Englishman "resurrection pie," and others varying hotch-potch culinary creations. My notes, therefore, for once, shall be to this recipe, a mental dish of spicy hash, if ingredients fail me not.

Official figures of the Lubiana affair give casualties 746. Some beehive strafers, apparently, those Caproni bomb-droppers—more power to their petrol. And while talking of wholesale slaughter let me remind you that England (and Scotland) and Austria alone have a true understanding of what dirigibles can do in this line, as an editor friend of mine, always keen on things fast and noisy, writes almost enviously.

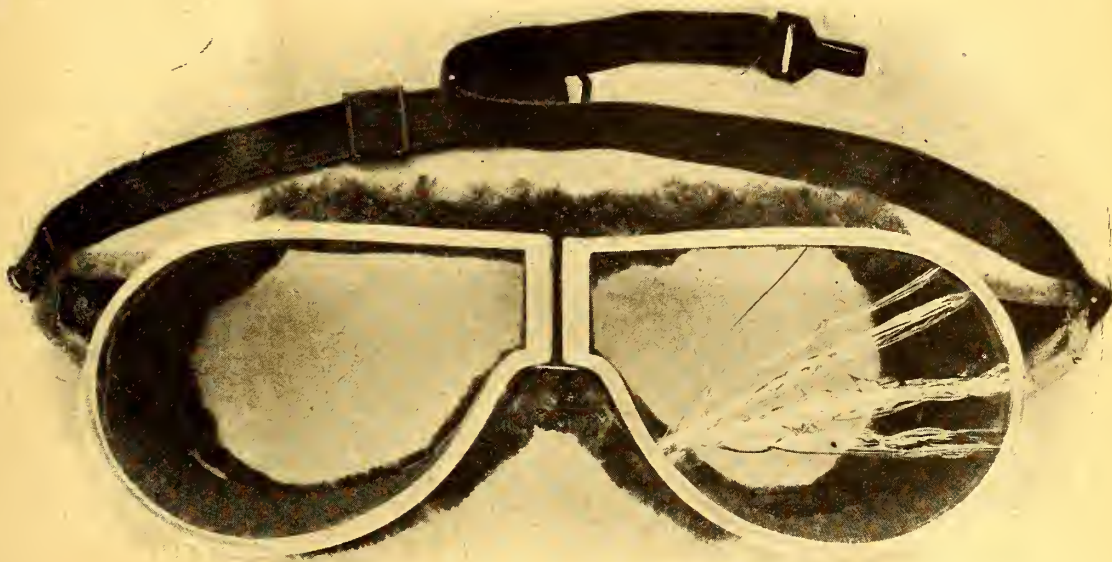
I would exchange much for a blue-print of the revolving chair-cum-gun-platform of the latest "de chasse" bus bruted about in papers from "beyond the Alps." To be really comfortable and efficient the seat should be one of those petrol-tank ones which I saw at a Turin show in happier times. Truly a balcony—flat inside—Vesuvius presents quite an alluring vision of peaceful security nowadays.



NEW PILOTS.—Some pupils recently passed out from the Hall School of Flying.—Top Row: Messrs. Cooke, Longton, Collias, Taylor, and Gaskell. Bottom Row: Messrs. Rand, Ormerod, Smith, Rochford, and Cook.

A MESSAGE FROM THE FRONT.

A pair of Goggles forwarded from London May 12th, returned May 19th. The Officer writes: "You will see I am greatly indebted to Triplex Safety Glass, as it saved my eye from being badly cut."



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

If someone must be half a mile above the earth's surface on dark nights, looking for things and losing his bearings and worse, why not anchor a hundred or so drachens about the danger zones as listening-posts? There were supposed to be some 200 in Italy before the Great Awakening, so probably plenty could be spared

* * *

If the variable-spread schemes had got into general use some of our bomb-carriers could get home quicker and more safely, says an engineer of repute. Evidently, when a weight-carrier is cargoless, there is a waste of horse-power, for when light great speed—so often so vital after the "hornets" have started in pursuit—cannot be attained.

* * *

Tests of the new fast Farmans "de chasse" were taking place when I last heard of the Savoia firm's activity. A patriotic offer to present one complete, pilot, upkeep, and all, for the protection of the commercial capital of Italy had been made on behalf of the firm. Among the other concerns which are building actively and will need much honourable mention whenever such can only do good is the Condor Co., now engaged on big things.

* * *

One's respect for the enemy's seaplanes, which spared not neither spoiled Ancona, somewhat evaporates when it has to be told that the "crossing of the Adriatic" was effected on board "torpedo-catchers."

The way they kept their escadrilles separate and in touch with one another, during the long night attack in April, by cunning coloured lights still remains admirable.

* * *

A Padua correspondent "much prefers their bombs to their pilgrims," referring to the marching incongruities which desecrated the fair fane of St. Anthony in pre-war days.

* * *

Capt. Bresciani, R.(N.)E., was awarded the silver medal for valour some while ago, about which my memory served me badly. He was much concerned in a machine of high military utility, and has also distinguished himself as a pilot over enemy soil on many occasions.

* * *

Dealing with spice and culinary creations, I see it stated that 150 M.P.s. of Great Britain are vegetarians. So they are now to be judged by what goes in as well as by what comes out. Or is the statement insinuating cause and effect?

Perhaps we may expect the following on the Allies:—"Three hundred of the French Deputies habitually lunch on frogs, whence they extract push and go. Italian Deputies are addicted to snails, which are said to produce the singing voice and excellent flying qualities. The Russian Duma exists chiefly on tea and caviar, which produces violent exhilaration and subsequent depression," etc., etc.—T. S. H.

TURKEY.

OFFICIAL COMMUNIQUÉ.

JUNE 21ST.—At 9 o'clock on Sunday morning nine enemy aeroplanes attacked El Arish with bombs and machine-guns. Two aeroplanes were shot down by our fire. One of them was observed to fall down wrapped in flames.

This air attack, which lasted two hours, was without result. The enemy was unable to do any damage.

Some enemy ships were seen off the island of Makronisi (Gulf of Smyrna) and were driven off by our fire.

[One would very much like to know the exact facts of this affair, for though the Turks make mistakes about the effect of their operations against the Allies, they very seldom lie directly about their own affairs.—Ed.]

BULGARIA.

OFFICIAL COMMUNIQUÉ.

JUNE 20TH.—Enemy aviators unsuccessfully bombarded Pardeitz and Doiran and inhabited places in the Rupel sector.

One of our aeroplanes dropped several bombs on an enemy transport near Porto Lagos, hitting it and severely damaging the bridge.

SWEDEN.

It is reported from Denmark that on June 25th a British steamer (name unknown), bound from a Swedish port in the Baltic for England, was held up off Halmstad by a German seaplane, whose commander ordered the captain to proceed to a German port.

The British captain refused to do so, being certain that his vessel was in Swedish waters. The seaplane then dropped bombs, but without hitting the steamer. A Swedish torpedo-boat, on arriving, forced the seaplane to retire.

INDIA.

It is reported that the Sultan of Johore has presented the Imperial Government with a squadron of fighting aeroplanes, costing £31,500.

AUSTRALIA.

The "London Gazette" of June 23rd notifies that Mr. W. J. Stutt has resigned his commission in that Territorial appendage

to the R.F.C. which is known officially as the Hampshire Aircraft Parks. Mr. Stutt came from Australia some three years ago to learn to fly at the famous Bristol School on Salisbury Plain, and though not an exceptionally quick beginner, he soon gave promise of being a very able pilot—at least, such was the estimate of him given to the present writer at the time by Mr. Harry Busted, one of the best judges of a pilot as well as being himself one of the best pilots the British Empire has produced.

The prognostication was more than fulfilled, for Mr. Stutt soon became, in his turn, a Bristol instructor, and a highly successful one at that. Before the war, and during the early days of the war, he trained pilot after pilot who has since distinguished himself. When the Bristol school at Brooklands was taken over by the Army he acted as civilian instructor and continued his valuable work.

At a later date Mr. Stutt joined the staff of the Royal Aircraft Factory as test pilot, and flew practically every type of machine produced by that establishment, and a number of "trade-built" machines as well, thus acquiring an exceptionally wide knowledge of bad and good aeroplanes alike. With so many types of machines on which to fly he soon disclosed his real qualities as a pilot, and it was not long before he was recognised as being quite in the first rank of aviators not merely in flying skill, but in judgment of flying conditions and judgment of an aeroplane's qualities.

Mr. Stutt's resignation from the R.A.F. and Territorial Aircraft Park is caused by his having been offered and having accepted a commission in the Australian Regular Army, as an officer of the Australian Flying Corps.

Australia's gain is distinctly England's loss, for he leaves in England a host of friends by whom his cheery presence will be greatly missed, especially at the Royal Aircraft Factory, where his honest and straightforward criticisms of the relative worth of different machines must have been of the highest value. His kindness of heart, his readiness to put himself to any trouble to help a friend, his capacity for being really funny when he chooses, and his good humour at all times make it impossible that he should be otherwise than popular. His first-class ability as a flier, and as a mechanical engineer also, guarantee his high value to the Australian Flying Corps. His many friends in England wish him every success in his own country.—C. G. G.

U.S.A.

Lieut. James Vincent Rockwell, a civil engineer in the United States Navy, who was in training as an aviator at Pensacola, was killed May 24th, when his Navy aeroplane dived 150 feet into the Gulf. The machine was badly damaged.

The accident occurred just as Lieut. Rockwell was ending a trial flight. His three little children saw him fall. He was thirty-nine years old, and was appointed to the service from Iowa.

* * *

Wireless communication with an aeroplane was put to a successful test at the naval aeronautical station at Pensacola for the first time when a Curtiss machine was sent up with an operator and a small wireless plant.

The wireless station at the Navy Yard kept in almost constant communication with the machine in the air. Due to the small plant, the communication was severed when the machine passed out of a radius of five miles.

[One assumes that the reference is to receiving messages on the machine, for a transmission of five miles would not be worth mentioning.—Ed.]

* * *

A good flight was recently made by a Thomas D-2 military tractor. This machine on May 29th, equipped with a Thomas aeromotor, made a continuous flight of three hours at an average speed of 85 miles per hour, covering approximately 250 miles. Mr. Frank Burnside piloted the machine.

ARGENTINA.

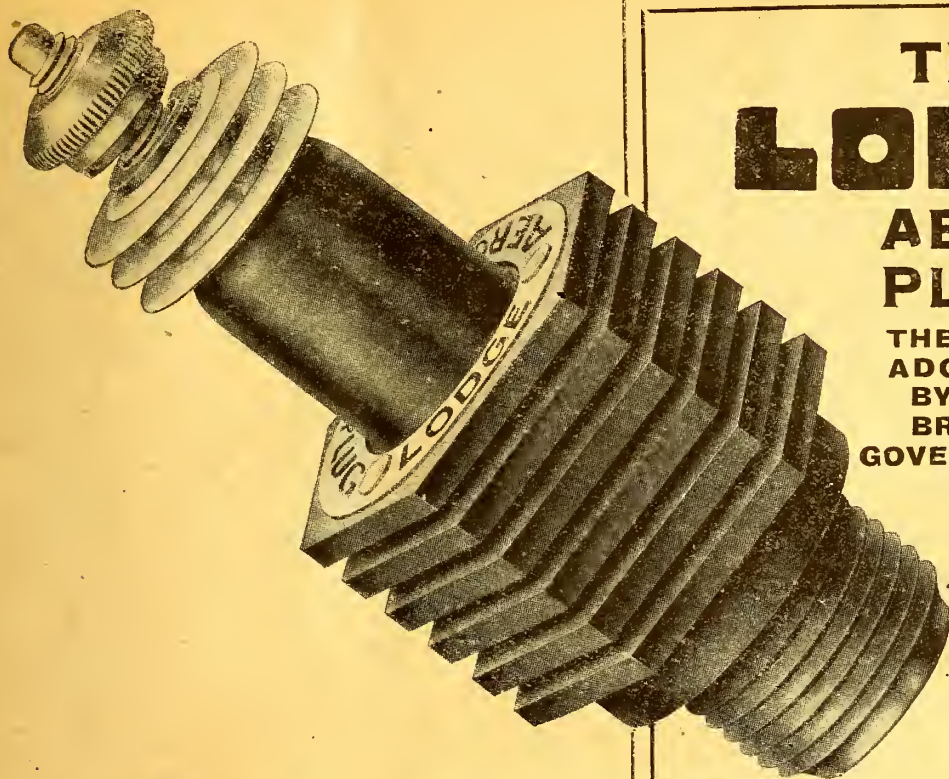
It is reported from Buenos Ayres that on June 24th two Argentines, named Bradley and Zuloaga, ascended in a balloon from Chilian territory and, passing over the Cordilleras (Andes), descended in Argentina, near Mendoza.

THE CIVILIAN SCHOOLS.

One is glad to hear that apparently there is every prospect of the War Office putting the civilian schools to good use. A conference was held last week between the heads of schools and the Directorate of Air Organisation at "Adastra House," the new R.F.C. administrative office, late de Keyser's Hotel, or "The Hub of Humdom," as someone called it.

At this conference it was agreed that either the R.F.C. should keep the schools supplied with pupils or that the schools should be taken over bodily—at a price—by the Government. Also that, in the former event, the R.F.C. should endeavour to induce the Treasury to pay a reasonable price per pupil.

One hopes that the former course will be followed, for one is convinced that commercial competition between the schools will



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produce better and quicker training than if they are all taken over and made into official establishments. One has only to compare commercial output with official output in any manufacturing business to realise the truth of this, and a flying school is, after all, only a pilot-factory.

The Directorate of Air Organisation, under General Brancker, is to be congratulated on the rapid and fair way in which it is tackling this problem, for no matter which way it decides to act it is better than leaving the schools to starve and thus wasting a source of supply.

As a matter of fact, there is no moral or legal obligation on the War Office to take over the schools and pay for their absorption, for it would be perfectly simple to commandeer the aerodromes, evict the tenants, and conscribe the mechanics and instructors into the R.F.C. The fact that such a course has not been pursued appears to indicate that those officers now in control of the R.F.C. realise that a little personal consideration and businesslike management may produce better results than strict adherence to the letter of the law. There seems in this a happy augury for the future.—C. G. G.

THE WRIGHT PATENTS.

(Continued.)

This was the first time in the history of the world that a movable vertical tail had been used in controlling the direction or the balance of a flying machine. It was also the first time that a movable vertical tail had been used, in combination with wings adjustable to different angles of incidence, in controlling the balance and direction of an aeroplane. We were the first to functionally employ a movable vertical tail in a flying aeroplane. We were the first to employ wings adjustable to respectively different angles of incidence in a flying aeroplane. We were the first to use the two in combination in a flying aeroplane.

We built a second machine and flew it in a field near the City of Dayton, Ohio, in the summer and autumn of 1904. When we had familiarised ourselves with the operation of the machine in more or less straight flights we decided to try a complete circle. At first we did not know just how much movement to give in order to make a circle of a given size. On the first three trials we found that we had started a circle on too large a radius to keep within the boundaries of the small field in which we were operating. Accordingly, a landing was made each time, without accident, merely to avoid passing beyond the boundaries of the field.

On the fourth trial, made on September 20th, a complete circle was made, and the machine was brought safely to rest after having passed the starting point. Thereafter we repeatedly made circles, and on November 9th made four circles of the field in a flight lasting a few seconds over five minutes.

In all these flights the warping wires and the wires controlling the vertical tail were interconnected, as in our patent. In order to circle to the left, we moved the cradle slightly to the left, thus turning the tail slightly to the left and imparting an increased angle to the right wing and a smaller angle to the left wing. This caused the machine to tilt so that the left wing was lower than the right wing, which, of course, in turn, caused the machine to slide somewhat to the left. This side movement of the machine tended to cause the vertical rudder to strike the air at a greater angle than was necessary to compensate for the difference in resistance of the right and left wings. This tendency caused the tail to lag behind in this lateral movement, just as the feather of an arrow causes the feathered end to lag behind when the arrow is dropped sidewise. Thus the lateral movement of the main aeroplane sidewise, as the result of tipping, became combined with the rotary movement about its vertical axis, due to the vane-like action of the tail, and the machine proceeded on a circular course.

But as the speed of the outside wing increased, and that of the inside wing decreased, by reason of the fact that the inner wing was travelling in a smaller circle than the outside wing, there was a tendency to tilt too much, and this was corrected by gradually moving the cradle toward the high wing, thus increasing the angle on the low wing and decreasing the angle of the high wing, and also setting the rudder over toward the high wing. This was done gradually, but only sufficiently to prevent the low wing from sinking lower and not enough to bring it back to the level. The machine then continued to circle to the left, with the vertical tail set over somewhat to the right, so that the machine turned in the opposite direction to that in which a ship would have turned with the ship's rudder set over to the right.

When it was desired to stop circling a sudden movement of the cradle toward the high side gave the wings an increased warp and brought the machine up to the level. Then on setting the cradle back to its central position, thus restoring the wings and tail to their central positions, the machine proceeded in a straight line, with the wings level.

With this machine we made approximately 100 flights in the year 1904. Usually the machine responded promptly when we applied the control for restoring lateral balance, but on a few occasions the machine did not respond promptly, and the machine came to the ground in a somewhat tilted position. The cause of the difficulty proved to be very obscure, and the season of 1904 closed without any solution of the puzzle.

In 1905 we built another machine and resumed our experiments in the same field near Dayton, Ohio. Our particular object was to clear up the mystery which we had encountered on a few occasions during the preceding year. During all the flights we had made up to this, time we had kept close to the ground, usually within 10 feet of the ground, in order that in case we met any new and mysterious phenomenon we could make a safe landing.

With only one life to spend we did not consider it advisable to attempt to explore mysteries at such great height from the ground that a fall would put an end to our investigations and leave the mystery unsolved.

The machine had reached the ground, in the peculiar cases I have mentioned, too soon for us to determine whether the trouble was due to slowness of the correction or whether it was due to a change of conditions, which would have increased in intensity, if it had continued, until the machine would have been entirely overturned and quite beyond the control of the operator. Consequently it was necessary, or at least advisable, to discover the exact cause of the phenomenon before attempting any high flights. For a long time we were unable to determine the peculiar conditions under which this trouble was to be expected. But as time passed we began to note that it usually occurred when we were turning a rather short circle.

We therefore made short circles sometimes for the purpose of investigating and noting the exact conduct of the machine from the time the trouble began until the landing was made. At one time we thought it might be due to some special reaction of the air, due to the fact that the machine, in circling, did not face exactly in the direction of the line of motion. To test this point we disconnected the rudder wire from the warping wire and operated the rudder by an entirely separate handle. The trouble, however, continued as before. A flight has been referred to in the "Century Magazine" article of September, 1908, in the following language:—

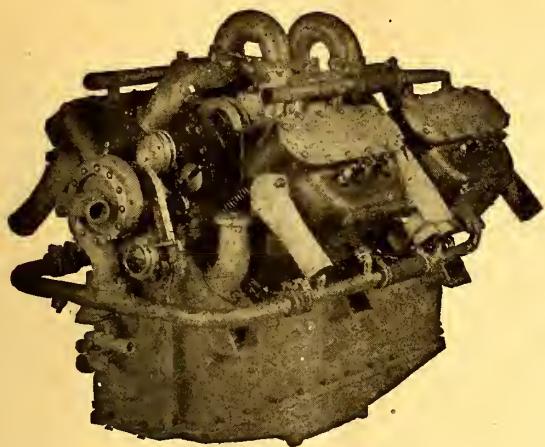
"We had not been flying long in 1904 before we found that the problem of equilibrium had not as yet been entirely solved. Sometimes, in making a circle, the machine would turn over sidewise despite anything the operator could do, although, under the same conditions in ordinary straight flight, it could have been righted in an instant. In one flight, in 1905, while circling around a honey locust tree at a height of about 50 feet, the machine suddenly began to turn up on one wing, and took a course toward a tree. The operator, not relishing the idea of landing in a thorn tree, attempted to reach the ground. The left wing, however, struck the tree at a height of 10 or 12 feet from the ground, and carried away several branches; but the flight, which had already covered a distance of six miles, was continued to the starting point."

The flight here mentioned was made on September 28th, 1905, with the rudder wires entirely disconnected from the warping wires. When it was noticed that the machine was tilting up and sliding toward the tree the operator turned the machine down in front and found that the apparatus then responded promptly to the lateral control. The remedy was found to consist in the more skilful operation of the machine, and not in a different construction.

The trouble was really due to the fact that in circling the machine has to carry the load resulting from centrifugal force, in addition to its own weight, since the actual pressure that the air must sustain is that due to the resultant of the two forces. The machine in question had but a slight surplus of power above what was required for straight flight, and as the additional load, caused by circling, increased rapidly as the circle became smaller, a limit was finally reached beyond which the machine was no longer able to maintain sufficient speed to sustain itself in the air. And as the lifting effect of the inner wing, owing to its reduced speed, counterbalanced a large part of the increased lift resulting from the greater angle of incidence on that wing, the response to lateral control was so slow that the machine sank to the ground usually before it had been brought back to the level again. In other words, the machine was in what has come to be known as a "stalled" condition.

The phenomenon is common to all the aeroplanes in the world and is the cause of frequent disaster to unskilled aviators. Our own machine is still subject to the same trouble. Within the last year four or five Wright machines have been wrecked by novices stalling the machines in attempting to climb too fast while circling, and have come tumbling to the ground, just as we did in 1905. Similar wrecks of other makes of machines now occur almost every week at the foreign flying schools. The remedy for the difficulty lies in more skilful operation of the aeroplanes.

When we had discovered the real nature of the trouble and knew that it could always be remedied by tilting the machine forward a little, so that its flying speed would be restored, we felt that we were ready to place flying machines on the market. We spent the next two years in building machines and making business arrangements for the exploitation of the patent. In 1908 we sold a machine to the United States Government, and in the years 1908 and 1909 flights were made before the officials of the United States, at Washington, and before the rulers of England, France, Spain, Italy, and Germany.



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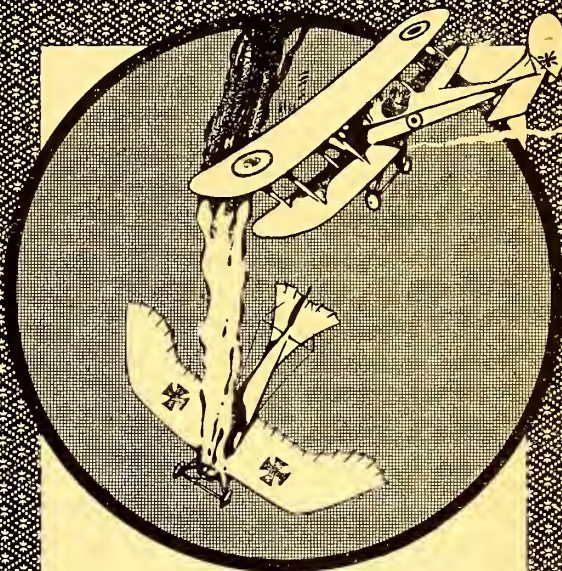
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"HOBSON'S CHOICE."

This being a technical paper it may be that a theatrical critique seems out of place, but one assumes that as large a proportion of THE AEROPLANE's readers as of the readers of any other paper go to theatres, and really first-class plays have been so very few and far between in the past few years that when one does appear it deserves the more praise. "Hobson's Choice," now running, and likely to run for a long while, at the Apollo is certainly the best-written play, the best-constructed play, and the best-acted play, that London has seen since war began. Mr. Brighouse's characterisation is as good and his humour as rich and rare as "Potash and Perlmutter," and withal there is more "human interest" to it, for one feels that his characters are really part of this nation's life, whereas Maurus and Abe, immortal as they are, were merely held up to exhibition.

Those of us who know the North or Midlands of England know the obstinate, self-satisfied, out-of-date business man Hobson intimately. He exists far higher up the social scale than the boot merchant of the play, and he even appears in the Services at times. He is, in fact, the master *Englishman* of a certain type. Mr. Norman McKinnel plays him to perfection, his acting and make-up are beyond criticism. But one wishes at times he knew the lower middle-class Manchester accent a trifle better, and Lowland Scots a trifle less well.

By the way! Why has no one yet dramatised "The House with the Green Shutters," for Mr. McKinnel? The chief character therein would make a fine opportunity for the actor who can play both Wycherley and Hobson so well.

Miss Edith Goodall's Maggie Hobson, the managing daughter, is absolute perfection in acting, accent, deportment and make-up. I can recollect nothing to compare with her art since Sarah Allgood in the Irish Plays. The similarity in stage names is peculiar, and one wonders whether one is an implied compliment to the other. Both are singularly appropriate. The biting remarks which Mr. Brighouse puts into Maggie's mouth are delivered as if they were impromptu, there is no trace of artistry anywhere in the performance. It is just pure nature or pure art—which are the same thing perhaps.

Mr. Joe Nightingale, as Willie Mossop, the captive of Maggie's will power, ex-boot-hand at 'Obson's and later boss of the show—subject to Maggie's controlling power—is another perfect actor, in that he does not act at all. He is as genuinely funny as Jay Laurier and George Formby rolled into one, and though "Willie" lives and works in Salford I am sure he came from Sowerby Brig.

The minor characters are all excellently played. "Tubbie," the

other boot-hand—made-up so that he looks like Mr. Augustine Birrell working for a living—is a pure joy whenever he appears. "Mrs. 'Epworth" in one short scene gives a perfectly marvellous sketch of the much-moneyed Mancunian, who still retains a modified version of her native dialect. The fine distinction between the accents is very prettily drawn. "Ada Figgins," Willie's lass before he is captured by Maggie, has only a few minutes on the stage, but she shows the other end of the scale of accents very neatly, and suggests that whenever Miss Goodall is compelled to take a holiday she has a very capable understudy. Maggie's sisters and their young men all play their parts far better than one is used to seeing minor parts played, and there is a clever little sketch of a Scottish doctor who is as obstinate as 'Obson himself, and who gets the better of him because he is more full of vitality than the patient who has been defeated in his battle with Beer, but is resolved to die fighting.

"Hobson's Choice" is one of the few plays one could see a number of times without being bored, for it is full of quaint sayings which may become catch-phrases in the language of London, and though the combined cleverness and fun of the first act makes one quite certain that neither author nor actors can keep to the same level later on, the performance does in fact improve.

Scenery and properties are on the same level as the rest of the show, and there are none of the anachronisms and solecisms which generally irritate one so much in plays put on by "fashionable" theatrical firms. Even to the details and wording of the reversed sign-writing on the shop windows, and on the cellar lights, the most meticulous care in being true to nature is observed.

But at the back of it all one finds oneself wondering whether Mr. Brighouse has not a serious purpose, and whether "Hobson's" is not an allegory. Does he imply that the working folk of England, driven against their will by the newly awakened women of England, will restore to the nation the vigour and vitality and the commanding position which has been almost destroyed by our self-satisfied, stupid, self-indulgent, grasping and yet unbusinesslike shopkeeping classes?—C. G. G.

WAR PROFITS TAXATION.

On June 26th, in the course of the Debate in the House of Commons on the Excess Profits Tax and Controlled Firms,

Mr. Joynton-Hicks (Brentford, U.) pointed out that the manufacturers of aircraft had no pre-war standard of profits. During the war they had received large orders from the Government, and were putting the whole of their profits into their undertakings in

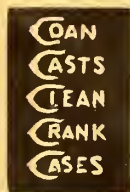
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order to increase their means of production. After the war those increased means of production would be of little or no value, because the exceptional demand for aircraft would have ceased, and he asked that the adjustments made under the Munitions (Limitation of Profits) Rules, 1915, should be accepted in computing profits for the excess profits duty.

The Chancellor of the Exchequer said the Government had gone a long way towards meeting the hon. member's argument; but it would not be proper to accept for application in regard to the excess profits duty regulations which were needed in order to stimulate an additional output after the maximum profits allowed had been earned. Under the principal Act the Commissioners of Inland Revenue had power to modify the schedule if they thought such a course necessary in order to meet particular cases, and he had given a pledge that they would exercise their powers in a certain way.

[Doubtless someone understands what this reply means, but the average man certainly will not.—Ed.]

SCHOOL REPORTS. HENDON.

AT THE GRAHAME-WHITE SCHOOL.

Instructors: Messrs. Biard, Hale, Manton, Pashley, Winter, and Russell.

Pupils with Instructor (doing straights): Messrs. Ballard, Bathurst, Cockelle, Duncan, Edwards, Fisher, Goodhart, Hodgkinson, Jamie, Kay, Reymers, Lyles, Mills, Mulville, Rodocanachi, and Ward.

Circuits with Instructor: Messrs. Donald, Phillips and Welinker. Figures of eight with Instructor: Messrs. Cooper, Forster, Parkinson and Turner.

Certificates were taken by Messrs. Rabordin and Smith. Machines: Grahame-White biplanes.

AT THE LONDON AND PROVINCIAL SCHOOL.

Instructors: Messrs. W. T. Warren, M. G. Smiles, L. H. Brake and W. T. Warren, jun.

Messrs. Egerton and Mander rolling. Messrs. Evernden, Jones, Daly and Sivewright straights.

Figures of eight or circuits alone: Messrs. Dawson, Birkbeck, Whittingham and Lieut. Deacon.

Certificates were taken by Lieut. G. R. A. Deacon and Mr. R. A. Birkbeck.

Machines: Three L. and P. tractor biplanes.

AT THE BEATTY SCHOOL.

Instructors: Messrs. G. W. Beatty, G. Virgilio, A. E. Mitchell and H. Fawcett.

Pupils out during the week: Messrs. Kay, Gliksten, Atkin, Venables, Phillips, Roberts, Murdoch, Clift, Hoskins, Whitmore, Earl, Skeet, Garlick, Edwards, McPherson, New, Jones, Elliott, White, Hick, Austen, Rudd, Curry.

Certificates taken by Messrs. F. W. Knox, R. A. S. Phillips, and H. E. Martin.

Machines: Beatty-Wright dual-control and single-seater Caudron.

AT THE RUFFY-BAUMANN SCHOOL.

Instructors: Messrs. Edouard Baumann, Felix Ruffy, Ami Baumann, André Thomsen, Clarence Winchester.

Pupils with Instructor: Messrs. Babington-Smith, Beebee, Tru-bridge, Fraser, Williams, Thomas, Fanshawe, Carr.

Straights or rolling alone: Messrs. Williams, Fraser, Fanshawe, Johnstone, Winter.

Figures of eight or circuits alone: Messrs. Winter, Johnstone. Certificates taken by Lieut. Melville Johnstone, and Mr. H. E. Winter, both in good style.

Machines: Ruffy-Baumann and Caudron type dual-control.

Remarks: Many passengers have been carried this week and a deal of constructional work has been accomplished by pupils.

AT THE HALL SCHOOL.

Pupils with Mr. Chas. Bell: Messrs. Armitage, Collier, Skinner, Deane, Davis, Russell.

With Mr. C. M. Hill: Messrs. Rand, Gaskell, Worswick, Dickson, Jones, Bartholomew.

Certificates were taken by Messrs. Gaskell, Rand, and G. Bartholomew on 70 Isaacson tractor.

BOURNEMOUTH.

AT THE BOURNEMOUTH SCHOOL.

Instructors: Messrs. S. Summerfield and Bryneldsen.

Pupils, rolling alone: Messrs. Fenn, Montgomery, Ross, J. B. Smith, Wingfield, Little, Hinchcliff, Turner, Brandon, Green, Pritt, Hammersley.

Straights alone: Messrs. O. Wilson, H. Smith, Barlow, Daniel, Scaramanga.

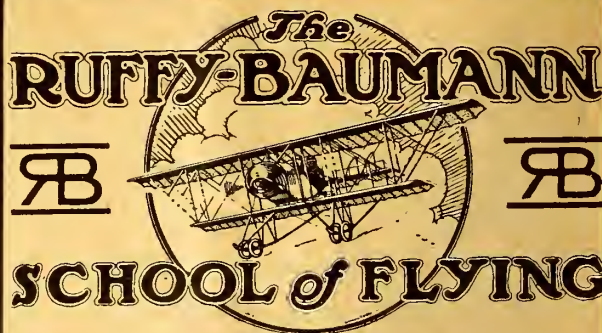
Half circuits alone: Mr. J. Wilson.

Machines: 35-45-60 h.p. Caudron tractor biplanes.

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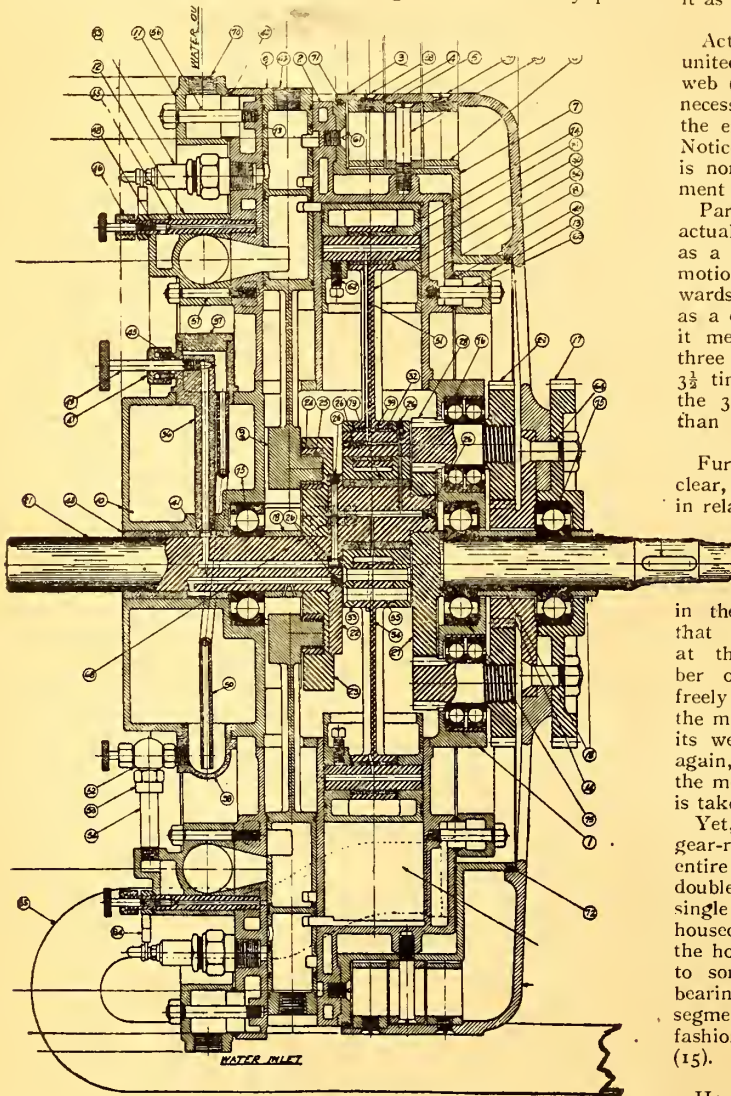
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Aero-motors: In Kind and Construction.—(Continued)

BY GEOFFREY de HOLDEN-STONE.

SORTING OUT GENERALLY.

Now, if without brain congestion you have survived that last awesomely comprehensive paragraph, and attained due comprehension of this watchmaker's dream by the help of the first diagram, we had better set about sorting out those ninety parts.



The Detroit Gas Turbine in Section.

Chiefly, separating in the first instance, the rotary from the reciprocating, but otherwise stationary; so that, grasping the exact idea of the main movement, it will be easier to trace through the detail to see how both kinds, and their movements, are related; in short, how the dream works into reality.

The mechanical centre of it, and hence the beginning and end of its motion, is, of course, that shaft. Notice, therefore, at the

outset, that it is primarily a driven shaft, and only secondarily a driving one, after the reduction gear has done reacting upon it. Secondly, avoid the mistake of supposing that it is two shafts, crank and driving—as that Manichaean list makes out—but regard it as one and indivisible as a shaft, and in respect of its motion.

CRANK-SHAFT CONSTITUTION.

Actually, it happens to be built up in two parts (21) and (20), united by screwing the crank-pin (31) on the rear part into the web (27) of the forward one. But that is merely a mechanical necessity, because the master grip (33) for the connecting-rods of the eight radial compressor pistons has to be set upon the pin. Notice also, that because the motion of the rotors and the shaft is normally clockwise, the thread of this crank-pin screw attachment has to be left-handed, or anti-clockwise.

Particularly again, notice that the right-hand crank-web (27) is actually formed as the final driven and driving gear. That is, as a driving gear in regard to the shaft—which takes its rotary motion from it, and transmits thence to the propeller direct, forwards, and rearwards to the compressors and valve-gear—and as a driven gear in relation to the little pinions (28) with which it meshes. And—it is almost needless to say—because it has three times as many teeth as these pinions, in the 100 h.p. type, $3\frac{1}{2}$ times as many in the 200 h.p., and five times as many in the 300 h.p., it rotates the shaft just so many times slower than the rotor-speed.

THE RUN OF THE REDUCTION GEAR.

Further, in order to get this reduction-gear motion absolutely clear, notice that these pinions (28) are, in turn, driven pinions in relation to the intermediate driving gears (29) to the left. Also that they are fast upon the same spindles (26)—which are screwed into the intermediate driving gears with a right-handed thread, counter to their motion—and consequently rotate at the same speed, despite the disparity in their respective diameters and numbers of teeth. Again, that these intermediate gears are in turn driven—also at the same speed, but this time with an equal number of teeth—by the central sun-pinion (14), which rotates freely upon the bronze bushing (18) outside the shaft and transmits the motion from the rotor-shell (3) to which it is attached through its web-extension or flange, by the clamp-bolts (64). And still, again, that these bolts also serve to attach the starter-gear from the motor-generator, from which the initial motion of the turbine is taken.

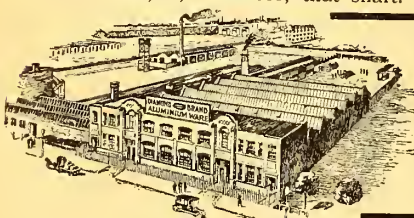
Yet, finally, notice that practically the entire work of the actual gear-reduction is done by the pinions (28), and consequently the entire thrust taken by the screwed spindles (26). Hence the double ball-bearings (76)—in the smaller models replaced by a single ball-bearing and a plain thrust bearing—which are duly housed in the end-plate of the crank-chamber (1), directly over the housing of the right-hand shaft ball-bearing. Then the shaft to some extent and the rotor-mass entirely, are taken by the bearing (75) at the extreme right; while both—as shown in the segmental illustration—are carried, in the usual rotary-motor fashion, by still another large ball-bearing in the carrying-frame (15).

THE STATIONARY PARTS.

Having thus disposed of the whole block of gear-work on the right, working outwards, we can now more readily separate the stationary from the rotary parts. The trunk bodies of the radial compressor cylinders—stationary—are fairly clearly apparent immediately above and below that central crank and master grip (33), on either side of the vertical centre-line along the connecting-rods (30); above which are the compressor pistons (8), with their gudgeon pins (62) drilled for oil-leads.

But actually for this separation, we should begin at the point

AP. 28.6 6



Sheet Metal Work—

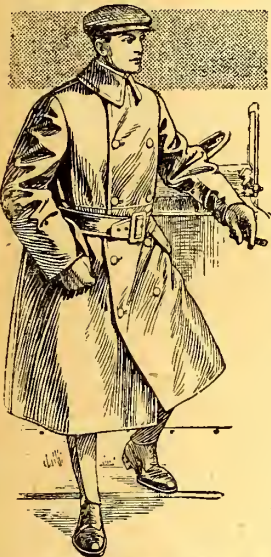
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(2), just at the left of the centre, and at the top. This shows the inner side of the cylindrical chest or casing of each follower valve. As we see, it is cast in one with the compressor cylinder, and freely water-jacketed; for it is entirely within this part that combustion takes place, as will be readily imagined from the position of the spark-plug (83). At the extreme left-hand top corner we also see the water-manifold (11), with its outlet above and inlet at the bottom; this part being cast in one with the valve-chest in the smaller 100 h.p. size, and—as shown in the section—separately attached by the bolts (56) in the larger two.

THE SPECIAL WATER-COOLING SCHEME.

Yet notice how, in order to keep the gas-compressor cylinder heads—which are just beneath the rotors—as cool as possible, the water-jacketing is heavily increased all the way over, and down to the other side, where the water is taken out at the smaller complementary annular passage—or manifold in the larger sizes—the circulator (13). Actually, the course of the water-circulation runs in the reverse way; into and around the jacketing of the lower valve-chests and cylinders, then into the circulator (13), and finally out—at the top left-hand corner in the sectional view—on the thermo-syphon system.

MINOR DETAILS.

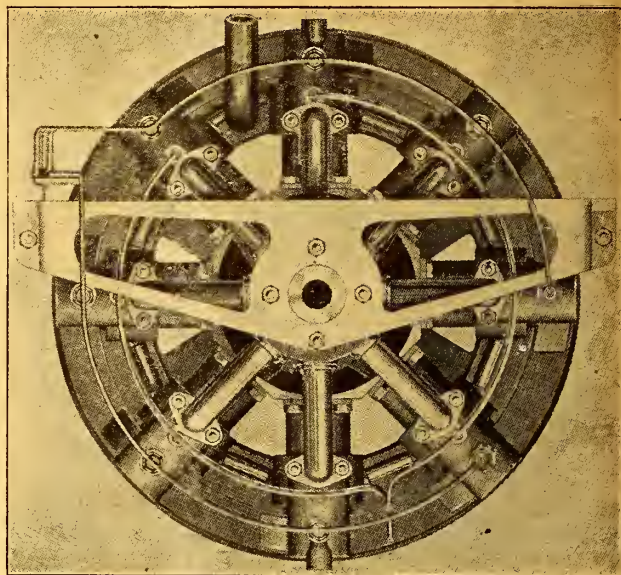
The mere action of the follower-valves (9)—which are fitted with packing rings (73) and divided into lower and upper intake and firing chambers—is simple enough. Their connecting-rods (9a) in the smaller model are attached to a master grip on an eccentric disc (23), set on the shaft, and secured to the rear crank web (22) by a lock-screw (68); or else, as shown in the sectional drawing, are stepped, with roller studs and bushings (24 and 25) into a slot or track-cam in the disc (23).

Also the actual diameters and strokes of the compressors in the three powers are $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in., $2\frac{3}{4}$ in. by 3 in., and $3\frac{1}{4}$ in. by $3\frac{1}{2}$ in., while the valve-measurements and movements are respectively $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. and $1\frac{3}{4}$ in. by $\frac{3}{4}$ in. So that the total piston displacement comes to 100 cubic inches in the 100 h.p. model, 160 in the 200 h.p., and as much as 232 in the 300 h.p. size.

CONCERNING THE TURBINE PART.

Now, the turbine portion—which as the constitutional novelty of this engine is the most interesting detail—is in two parts; the inner and outer rotor blade-series (4) and (6)—which are attached to the drum-like rotor-shell (3) by a series of grub-screws (58) and (60) on either side of the stationary deflector or stator blade series (5)—and the stator, or inside casing (7).

This latter, as its name implies, is stationary, and consists of



Side View of the Detroit Turbine.

a drum-like rectangular inner shell, secured to the stationary mass—as we shall see by tracing its outline downwards from the point (2)—at points in the valve-chest water-jacketing, by a series of heavy grub-screws (61); and, again, on its drum-portion, where it encloses the compressor-cylinders, by another series of bolts (60), which also act as through-bolts to secure the deflector-blade member (5) to the stator-shell itself.

TWO PARTICULAR PACKINGS.

If now we examine the sectional drawing very closely near the middle at the top, and again at the lower right-hand corner, we shall see the packing-rings (71) and (72) set into the vertical and horizontal flanges of the stator-drum, and lapped over by the two edges of the rotor-shell.

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which is, of course, essential to the mechanical action of the turbine—and at the same time a gas-tight one, which seems obviously essential to its physical efficiency in the case of (71) where the explosion effort takes its initial effect, though perhaps less so at (72), which is the bottom corner of the annular exhaust chamber. This latter is admittedly made of asbestos, and, fitted as it is under the edge of the stator-drum and contained by both sides of the rectangularly-flanged joint of the rotor-shell edge, can hardly blow out.

AND CERTAIN ESSENTIAL CONSIDERATIONS.

The constitution of the former (71), however, is left to our imagination. It must essentially make a dead-close fit to be gas-tight, for there is no further mechanical baffle—such as a shoulder-ring extension of the vertical stator-flange, or a halved overlay ring from the top of the follower-valve chest—to keep it so. And the peripheral speed of the moving edge of the rotor-shell—anything up to 12,000 or 15,000 r.p.m., remember—is, of course, higher than at the smaller diameter of the other packing-ring (72).

So it must be something of a highly lubricant nature, at any rate, to be mechanically efficient. And no less essentially that substance must be practically incombustible, as well as not liable to disintegrate and blow out—which, again, there is no shoulder-flange to prevent—under the heat to which—and at *maximum* explosive temperature, recollect—it is exposed at this point. Here, then, if anywhere, is the crab to efficiency.

Not that we need assume its existence, in so clever, so *experimentée* a design. The evident problem would doubtless be lessened by the suggested—but here non-existent—shoulder-flange on the stator. And it might—for aught we know, may be—adequately arranged for by some such device as a number of thin brass segments, channelled out to hold a filling of highly compressed plumbago, or a compound of plumbago and silica as a binder. Or we have some other guess coming perhaps. So it would have been kinder to have told us, instead of leaving us in doubt.

(To be continued.)

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Muriel Countess Helmsley and Mrs. Rowton beg to acknowledge the following contributions towards their fund for prisoners of war in Germany:—From the employees of Vickers, Ltd., Weybridge Works, £7 4s. 7d.; from the employees of Vickers, Ltd., Bexley Heath Works, £3 11s. 9d.

MILESTONES XXXV.

The Flanders monoplane of 1912 with 70-h.p. Renault engine was one of the last machines to be fitted with the king-post system of wing bracing. Considerable attention was paid to the springing of the landing carriage.

The Flanders biplane with A. B. C. engine was entered for the British Military Trials. Notable features were the highly staggered planes, extremely low chassis and deep fuselage. Also, the upper plane was bigger in every dimension than the lower plane. About the first instance of this practice.

The Bristol biplane, with 100-h.p. Gnome engine, was also entered for the trials. It was ultimately withdrawn.

The Mars monoplane, afterwards known as the "D. F. W.," was a successful machine of the Taube type with 120 h.p. Austro-Daimler engine. The method of building the engine into a cowl, complete with radiator in front, followed car practice very closely. The tail of the monoplane had a flexible trailing edge, and its angle of incidence could be varied from the pilot's seat, so that perfect longitudinal balance was attained at all loadings and speeds.

The Handley-Page monoplane, with 70 h.p. Gnome engine, was an early successful British attempt at inherent stability.—W. L. W.

THE DOVER INCIDENT.

At the Kent Assizes at Maidstone on June 22nd, before the Lord Chief Justice, Edgar Charles Middleton, 21, a journalist, was indicted, under the Defence of the Realm Act, for attempting without authority to elicit information regarding the Royal Naval Air Service calculated to be useful to the enemy. He pleaded "Guilty."

Mr. Dodson, for the prosecution, said that the defendant for some months held a commission in the Royal Naval Air Service, which commission terminated in December last. He then became a journalist, and later went to Dover, where he represented to at least two naval officers that he had been sent there to get information for a certain member of Parliament, and put questions to those officers. What the defendant did might have merely been the result of the impetuosity of youth, and it was possible that when he had acquired a little more tact and discretion he might yet be of service to the country.

His Lordship said he believed that the defendant had no evil motive. He took into account his youth and his undoubted loyalty to his country, and he thought that justice would be met—more especially as he had already been six days in custody—by ordering him to enter into his own recognisances in £25 to come up for judgment if called upon.

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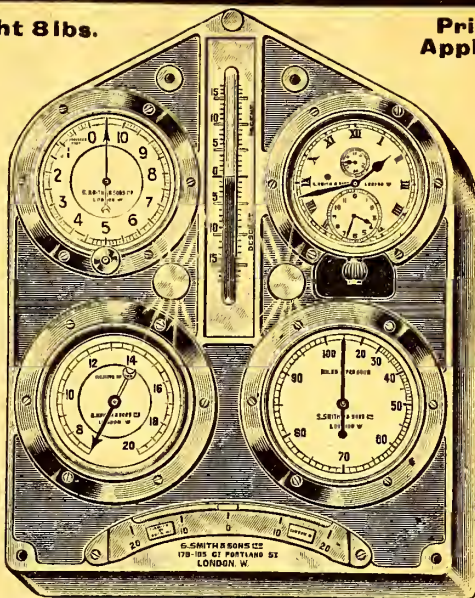
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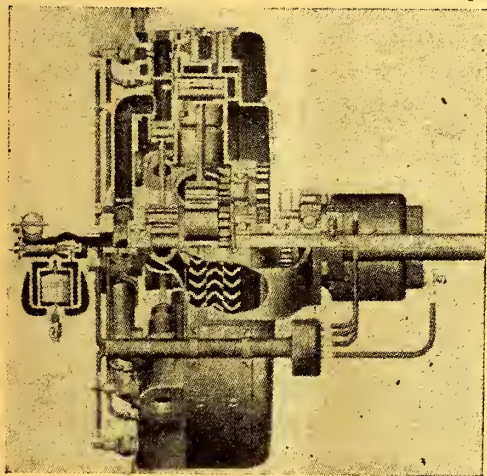
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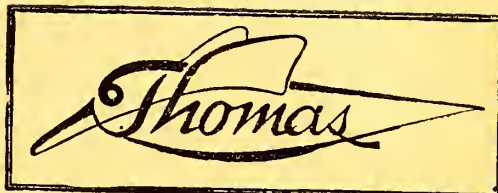
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THE WEEK-END AT HENDON.

On Saturday a programme of athletic sports, under the auspices of the Y.M.C.A., was arranged to take place at Hendon. The aerodrome was kindly lent for the occasion by the Grahame-White Aviation Co., Ltd., and all the firms in Hendon and the surrounding district engaged in the aircraft industry took part.

Between five and six thousand people were present, and it was distinctly bad luck that the weather should have behaved as it did. However, in spite of many showers, the whole programme was carried through with success.

There were 1,500 entries for the 24 events, and the programme was carried out according to schedule time, beginning at 3 o'clock and ending at 6. This is almost unique in the history of athletic meetings, and reflects great credit on Mr. Herbert Naylor, of the Central Y.M.C.A., and the others assisting in the arrangements. Mr. A. K. Yapp acted as referee.

The events were as follows:—

880 Yds. Flat.—1, Welsh (Napier); 2, Lewis (Napier); 3, Wilcox (British Thomson-Houston).

Sack Race.—1, Simpson (Darracq); 2, Hope (B.T.H.); 3, Clevelly (Napier).

Egg and Spoon Race for Women Workers.—1, Miss White (Darracq); 2, Miss Colman (Handley-Page); 3, Miss Hogben (Handley-Page).

Veterans' Handicap, 100 Yds. (Age Minimum, 40 Years).—1, Phillips (H.-P. Co.); 2, James (Grahame-White); 3, Duffield (H.-P. Co.).

220 Yds.—1, Howell (Darracq); 2, Edwards (Grahame-White); 3, Clennell (Napier).

One Mile.—1, Welsh (Napier); 2, Stanton (G.-W. Co.); 3, Crabtree (G.-W. Co.).

60 Yds. for Women Workers.—1, White (Darracq); 2, Baker (Darracq); 3, Hearnshaw (B.T.H.).

Three-legged Race for Boys: 1, Wildey and Storey (H.-P. Co.); 2, Batchelor and Wallace (H.P. Co.).

Two Miles Walk.—1, Stevenson (Napier); 2, Watts (G.-W. Co.); 3, Dover (Darracq).

100 Yds. for Boys.—1, Williams (B.T.H.); 2, Jennings (B.T.H.); 3, Suddaby (G.-W. Co.).

440 Yds.—1, Babbs and Edwards (dead-heat) (G.-W. Co.); 3, Luther (Aircraft Mfg. Co.); 4, Green (G.-W. Co.).

Circular Skipping for Women.—1, Moore (G.-W. Co.); 2, White (Darracq); 3, Baker (Darracq).

Pillow Fight.—1, James (Napier); 2, Powell (Caudron); 3, Harrington (G.-W. Co.).

Directors' and Managers' 100 Yds. Handicap.—1, Holden (G.-W. Co.); 2, Voight (Integral Propeller Co.); 3, Ritchie (G.-W. Co.).

Cycle Obstacle Race.—1, Woolgar (Caudron); 2, Bass (Napier); 3, Johnson (Wells Co.).

Cigarette Race.—1, Miss White and Mr. Anderson; 2, Miss Bingham and Mr. Kyseor.

Tug-of-War.—1, Darracq Co.; 2, Napier Co.

One Mile Relay, Inter-works.—1, Handley-Page team; 2, Napier; 3, Darracq.

Obstacle Race.—1, Crabtree; 2, Bass; 3, Dunkley.

The Aircraft Championship Silver Trophy given for the best aggregate scoring was won by the Napier Company with 20½ points, Darracq's being second with 10, and the Grahame-White Company third with 8½.

Mrs. Winston Churchill gracefully distributed the prizes at the conclusion of the sports. The Army Service Corps band gave selections, and several exhibition flights were made in the dry intervals during the afternoon, Mr. Manton being in particularly good form.

On Sunday the weather was very pleasant, which was not absolutely necessary, and somewhat annoying for those who had organised the sports on the previous day.

The visitors, who included a number of wounded and exchanged prisoners of war, sat around very patiently while the Grahame-White three-seater took up an assortment of passengers of various sizes and ages. It may have been exhilarating for the passengers and even for the pilots, but it was not for the spectators.—D. W. T.

ON GERMAN AIR RAIDS.

"The Times" History of the War for June 20th contains a long chapter on German Air Raids between February and May, 1916. The account is well written, and contains a good deal of detail which could not be published immediately after the raids occurred. The writer lays considerable emphasis on the poor state of the British anti-aircraft defence during the earlier portion of this period, but is satisfied that marked improvement has been achieved since then. The ethics of Zeppelin raids and reprisals thereto are discussed at some length.

The History contains some excellent photographs, especially of wrecked Zeppelins, and sketches, but is marred by the unfortunate inclusion of an obviously dummy seaplane, apparently the work of some jovial sailors at a Fleet regatta, which is quite seriously labelled "A Seaplane about to take Flight." As a matter of fact, the contrivance is about as capable of leaving the sea as the "Queen Elizabeth."—W. L. W.

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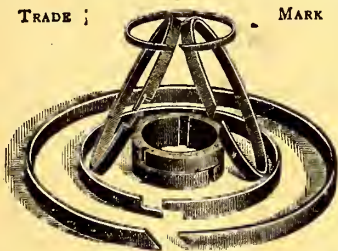
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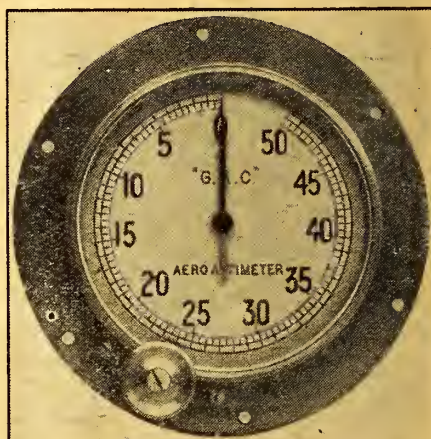
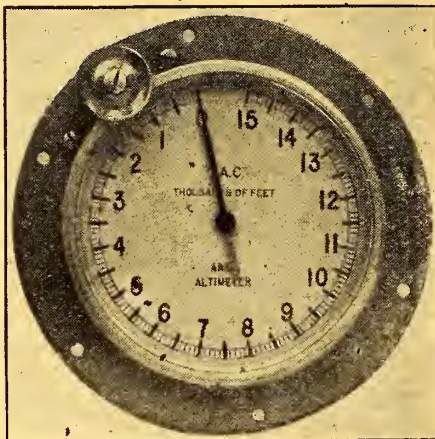
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The General Aeronautical Co., Ltd., of 30, Regent Street, S.W., have two new models added to their well-known range of "Featherweight" aero altimeters since these popular instruments were first referred to in the columns of THE AEROPLANE.

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The photographs of Beatty pupils published in last week's issue of THE AEROPLANE were taken by Mr. F. N. Birkett, 97, Percy Road, Shepherd's Bush, from whom copies may be obtained.

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Miss Dorothy Watts-Ditchfield, daughter of the Bishop of Chelmsford, on Saturday opened a garden sale in the rectory grounds at Woodford in aid of a fund for rebuilding St. Augustine's Church, Leytonstone, which was partially demolished by a bomb.



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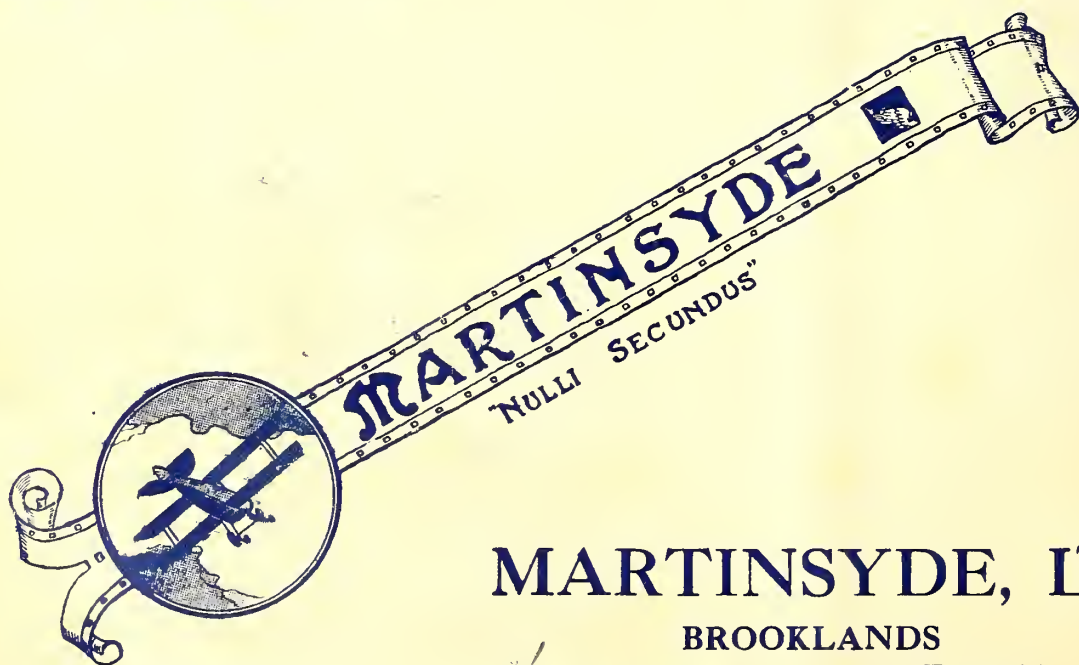
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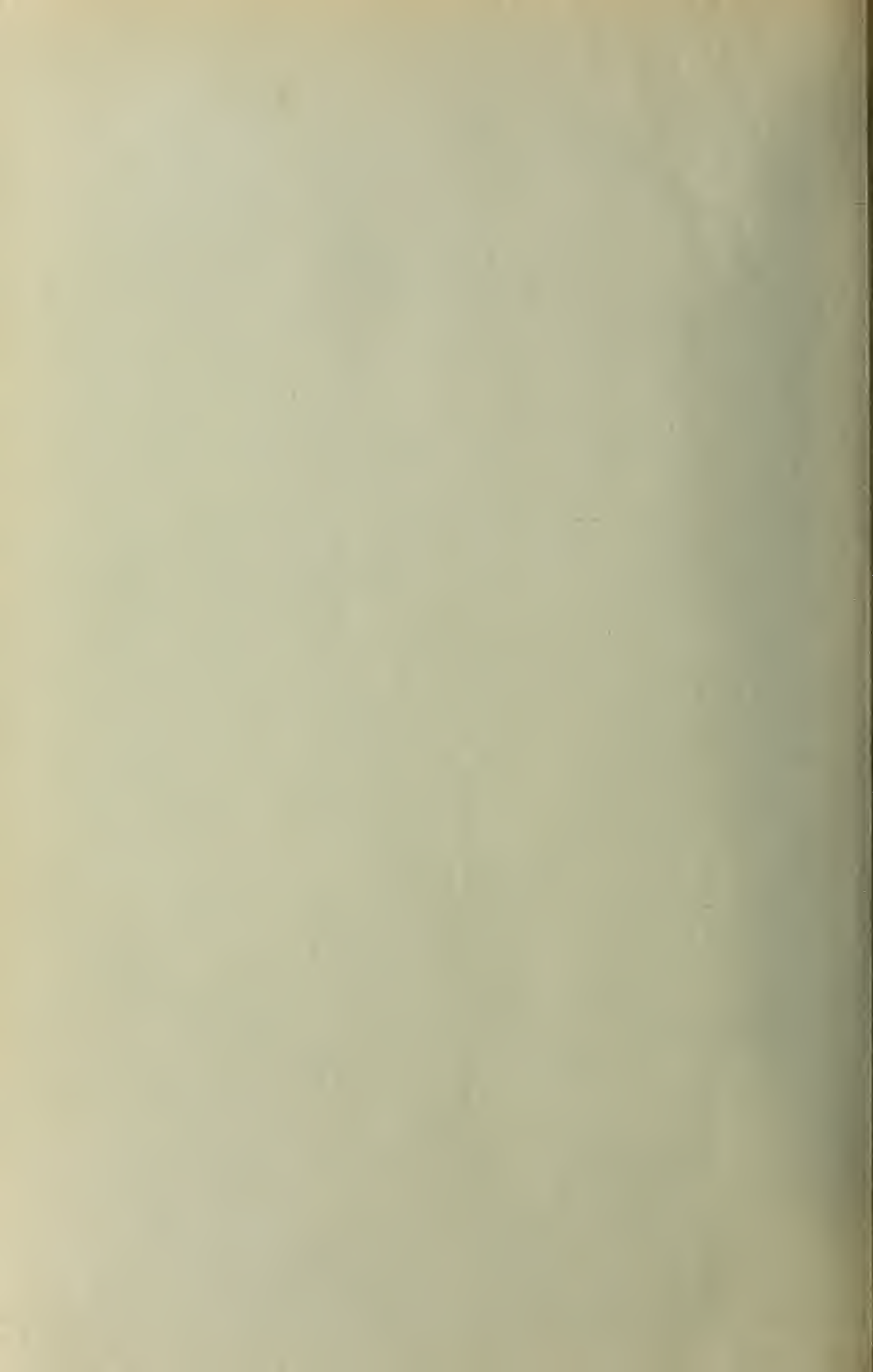
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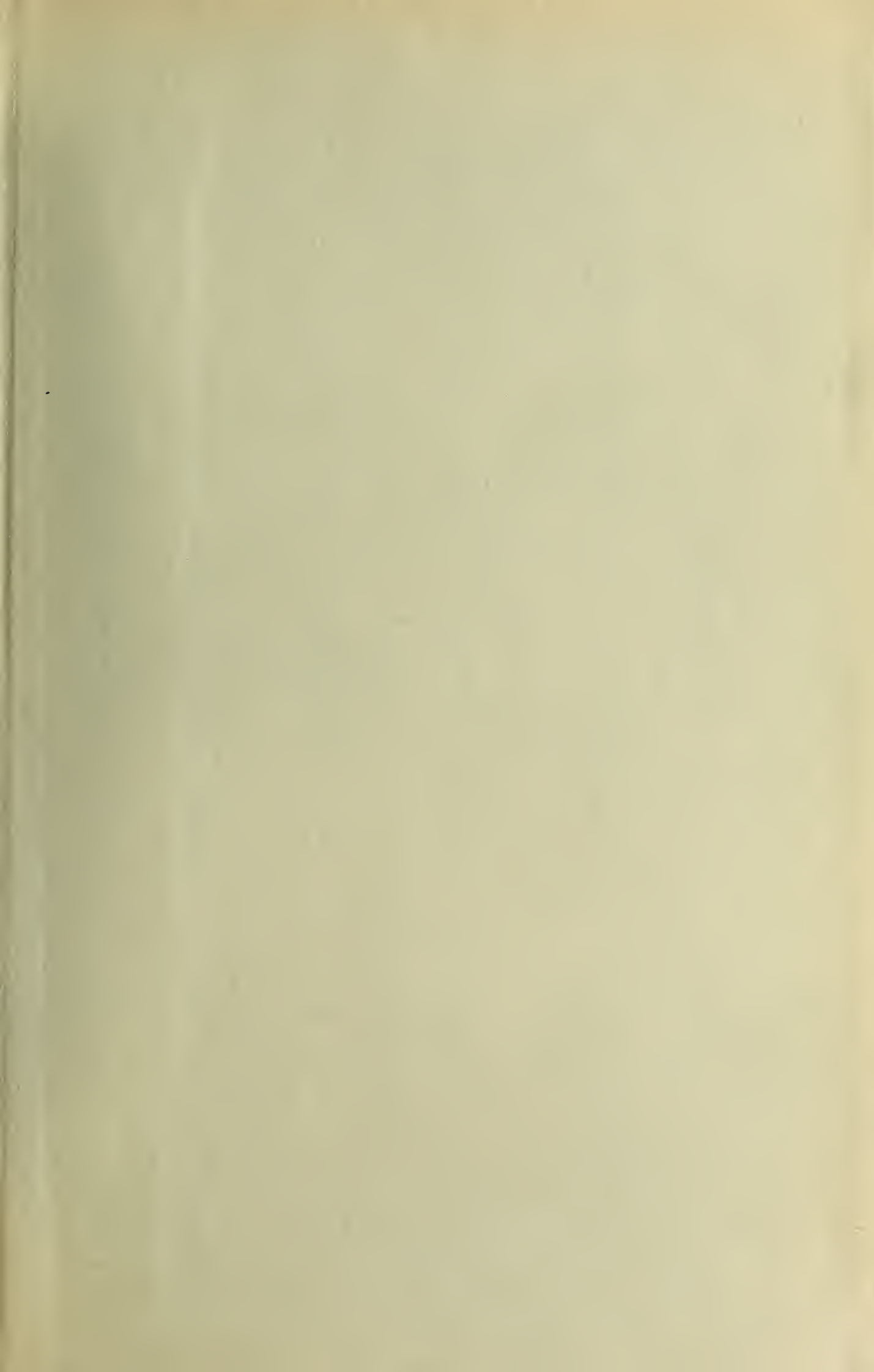
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